Altos 1100E Series

User's Guide

Document History

EDITION	PART NUMBER	DATE
First	49.AB791.001	August 1999

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IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions carefully. Save them for future reference.

2. Follow all warnings and instructions marked on the product.

3. Unplug this product from the wall outlet before cleaning. Do not use liquid or aerosol cleaners. Use a damp cloth for cleaning.

4. Do not use this product near water.

5. Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious damage to the product.

6. Slots and openings in the cabinet and the back or bottom are provided for ventilation; to ensure reliable operation of the product and to protect it from overheating, these openings must not be blocked or covered. This product should never be placed near or over a radiator or heat register, or in a built-in installation unless proper ventilation is provided.

7. This product should be operated from the type of power indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.

8. This product is equipped with a 3-wire grounding-type plug, a plug having a third (grounding) pin. This plug will only fit into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace the outlet. Do not defeat the purpose of the grounding-type plug.

9. Do not allow anything to rest on the power cord. Do not locate this product where persons will walk on the cord.

10. If an extension cord is used with this product, make sure that the total ampere rating of the equipment plugged into the extension cord does not exceed the

extension cord ampere rating. Also, make sure that the total rating of all products plugged into the wall outlet does not exceed 15 amperes.

11. Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

12. Do not attempt to service this product yourself, as opening or removing covers may expose you to dangerous voltage points or other risks. Refer all servicing to qualified service personnel.

13. Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

    a. When the power cord or plug is damaged or frayed

    b. If liquid has been spilled into the product

    c. If the product has been exposed to rain or water

    d. If the product does not operate normally when the operating instructions are followed. Adjust only those controls that are covered by the operating instructions since improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal condition.

    e. If the product has been dropped or the cabinet has been damaged

    f. If the product exhibits a distinct change in performance, indicating a need for service

14. Use only the proper type of power supply cord (provided in your keyboard / manual accessories box) for this unit. It should be a detachable type: UL listed / CSA certified, type SVT / SJT, rated 10A 125V minimum. Maximum length is 15 feet (4.6 meters).

15. Replace the battery with the same type as the product's battery we recommend. Use of another battery may present a risk of fire or explosion. Refer battery replacement to a qualified service technician.

The battery could explode if not handled properly. Do not recharge, disassemble or dispose of it in fire. Keep it away from children and dispose of any used battery promptly.

CD-ROM Safety Warning

DANGER
INVISIBLE RADIATION WHEN OPEN.
AVOID EXPOSURE TO BEAM.

FCC Class B Radio Frequency Interference Statement

Note:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna.

2. Increase the separation between the equipment and receiver.

3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

4. Consult the dealer or an experienced radio / television technician for help.

Notice 1:

The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Notice 2:

Shielded interface cables, if any, must be used in order to comply with the emission limits.

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About This Manual

This user's guide aims to give you the information you need to operate the system properly and tells you how to install internal components.

Manual Structure

This user's guide consists of four chapters and an index.

Chapter 1 System Housing

This chapter describes the features of the system housing and tells you how to install the basic system components such as disk drives, a system board, or expansion boards. It also describes the IDM BPL3 and BPL5 LVD SCSI backplane subsystems, which consist of a backplane board and drive trays that support LVD SCSI hard disk drives.

Chapter 2 System Board

This chapter describes the system board and all its major components. It contains information about the system board layout, jumper and connector locations, jumper settings, connector functions, and information on installing optional components. At the end of the chapter you will find an explanation of error messages and corresponding corrective measures.

Chapter 3 BIOS Utility

This chapter gives information about the system BIOS and tells how to configure the system by setting the BIOS parameters.

Chapter 4 SCSI*Select* Configuration Utility

This chapter describes the SCSI*Select* Configuration Utility, which allows you to change SCSI controller settings without opening the computer or changing jumpers.

Conventions

The following conventions are used in this manual:

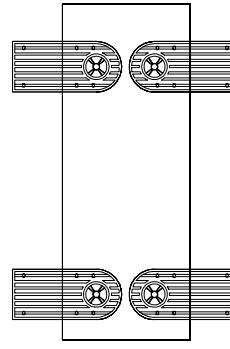
CTRL, ALT, ESC	Represents the actual keys that you have to press on the keyboard.
	NOTE Gives bits and pieces of additional information related to the current topic.
	WARNING Alerts you to any danger that might result from doing or not doing specific actions.
	CAUTION Suggests precautionary measures to avoid potential hardware or software problems.
	IMPORTANT Reminds you to take specific action relevant to the accomplishment of the procedure at hand.
	TIP Tells how to accomplish a procedure with minimum steps through little shortcuts.

Chapter 1 System Housing

This chapter describes the features of the system housing and tells you how to install the basic system components such as disk drives, a system board, or expansion boards.

If you receive a complete system, the basic components are already installed.

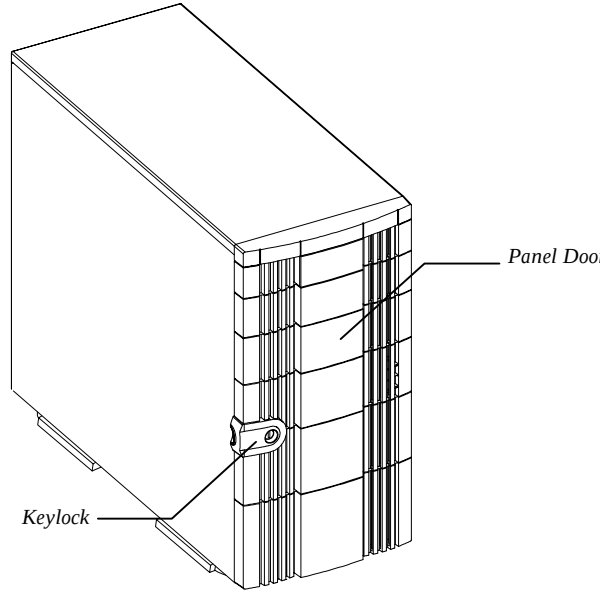
1.1 Stand-alone System



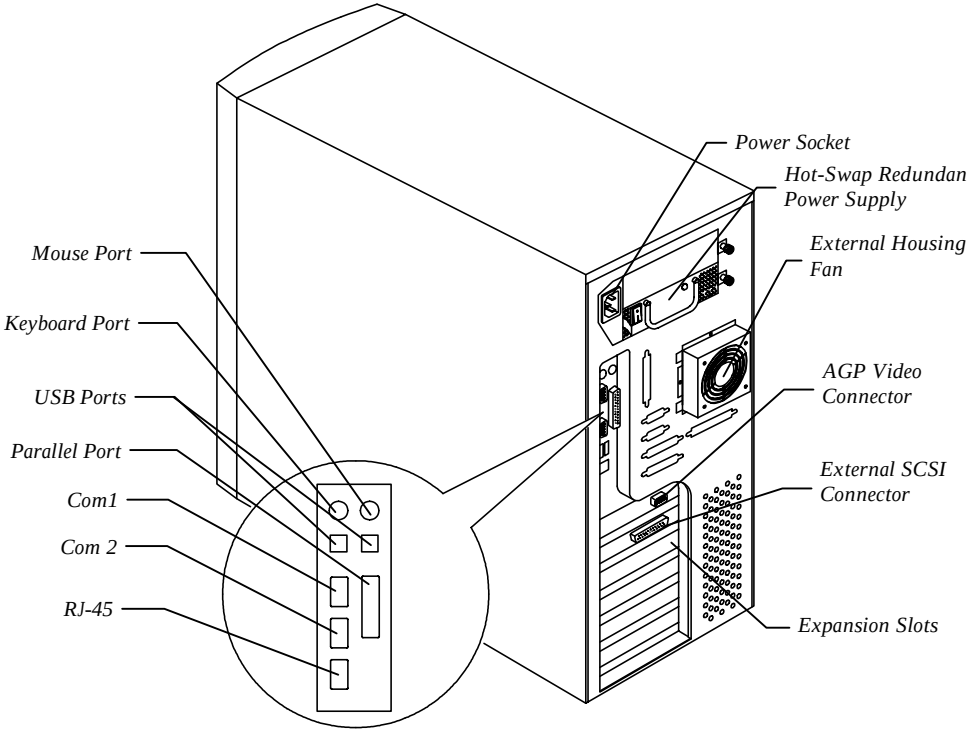
The Altos 1100E housing is a stand-alone system housing. Rotate the feet outward to stabilize the housing.

1.2 Features

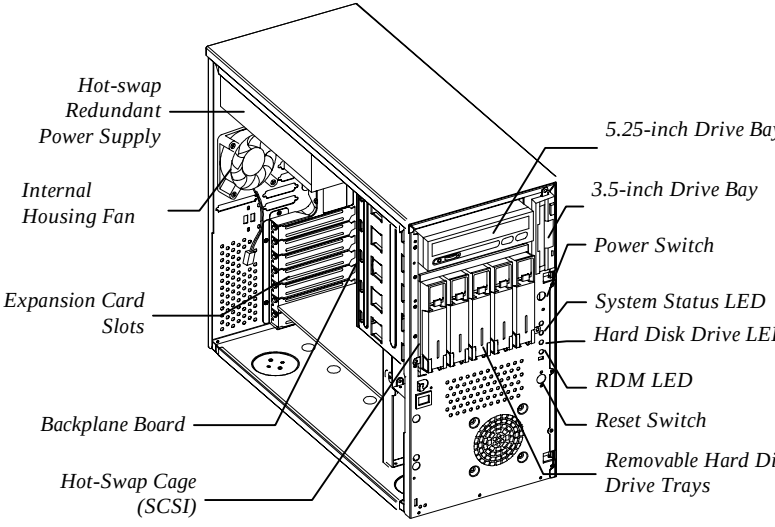
1.2.1 Front Panel



1.2.2 Rear Panel

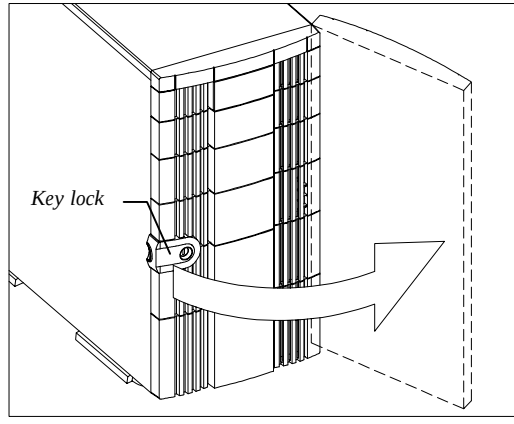


1.3 Internal Structure



1.4 Opening the Housing Panels

1.4.1 Front Panel



To open the front panel, use the key to unlock and then pull the panel as shown in the illustration above.

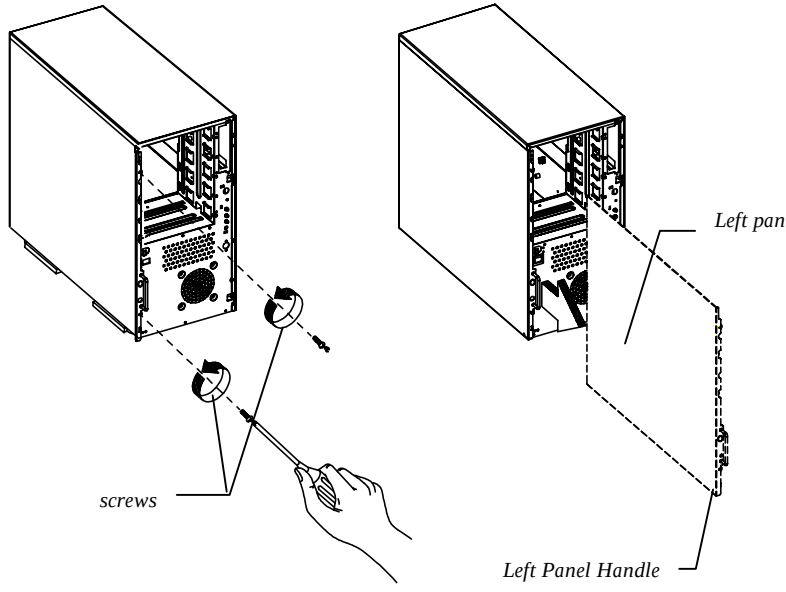
1.4.2 Left Panel

To remove the left panel:

Turn off the power switch and unplug the power cord before removing the left panel. See section 2.6 for important ESD precautions and pre- and post-installation instructions.

1. Remove the two front thumbscrews. Keep them in a safe place for later use.

2. Pull the panel handle out and use it to remove the left panel from the housing.



1.5 Installing Drives

Turn off the power switch and unplug the power cord before installing or removing drives. See section 2.6 for important ESD precautions and pre- and post-installation instructions.

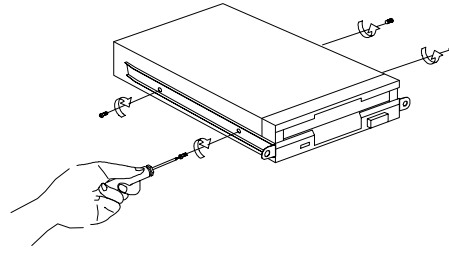
1.5.1 3.5-inch Drive

To install 3.5-inch drives:

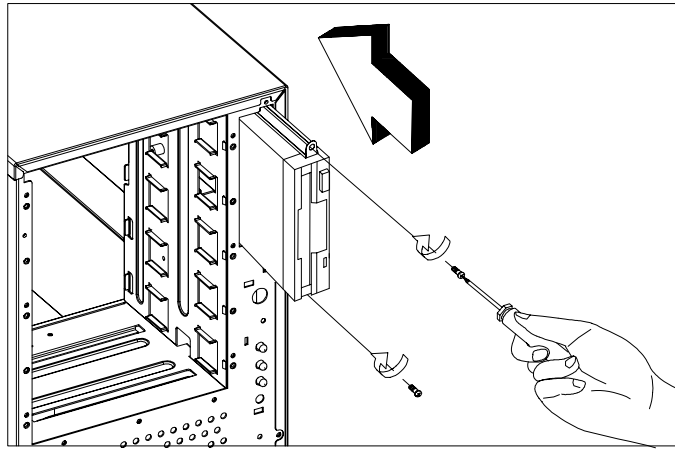
1. Open the front panel of the housing. See section 1.4 for more information on opening the housing panel.

2. Detach the 3.5-inch drive frame (2 pieces) from the housing by removing two screws. Keep the screws for later use.

3. Attach the drive frames to the 3.5-inch drive securing it with four screws as shown below.



4. Insert the drive into the drive bay and secure it with two screws.



5. Connect the diskette drive cables and close the housing panels.

1.5.2 5.25-inch Drives

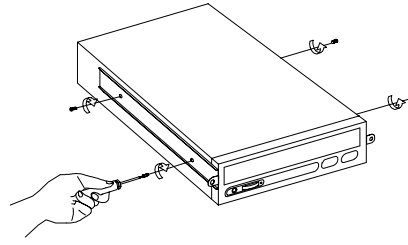
You may install a CD-ROM, digital audio tape (DAT), hard disk, diskette drive or any other 5.25-inch device into the drive bay.

To install 5.25-inch devices:

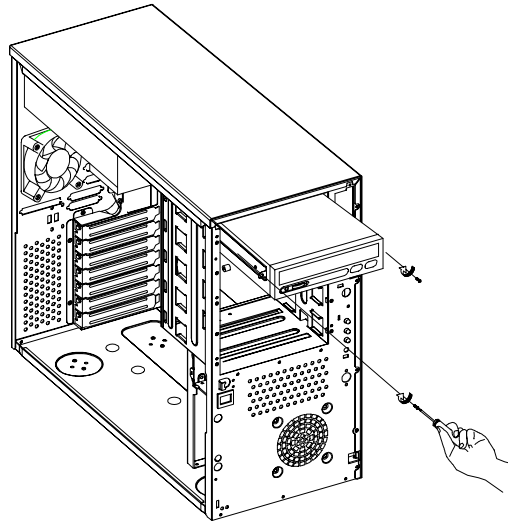
1. Open the front panel. See section 1.4 for more information on opening the housing panel.

2. Detach the 5.25-inch drive frame (2 pieces) from the housing by removing two screws. Keep the screws for later use.

3. Attach the drive frames to the 5.25-inch drive securing it with four screws as shown below.



4. Insert the drive into the drive bay and secure it with two screws.



5. Connect the signal and power cables to the drive and close the housing panels.

1.6 Installing Hot-Swap Cages

You can install either one BPL3 hot-swap cage or one BPL5 hot-swap cage into the system housing. The system housing comes with one BPL5 hot-swap cage.

BPL3 and BPL5 Hot-Swap Cage Comparison Table

	BPL3	BPL5
Dimension occupied	Two 5.25” bays	Three 5.25” bays
Cooling fans	Two 6 cm fans	One 12 cm fan
Power LED, HDD Access LED, HDD Fail LED	Yes	Yes
HDD Support	SCA HDD	SCA HDD
Transfer Rate	80MB/s Ultra2 LVD	80MB/s Ultra2 LVD
SCSI Termination	Yes	Yes
SCSI out (for termination or expansion)	Yes	Yes

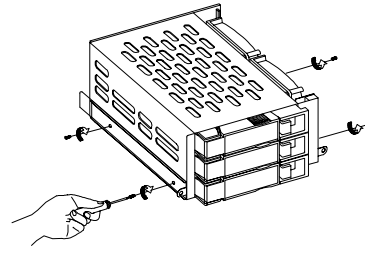
See section 1.10 for additional information about BPL3 and BPL5 backplane boards.

Installing a BPL3 Hot-Swap Cage

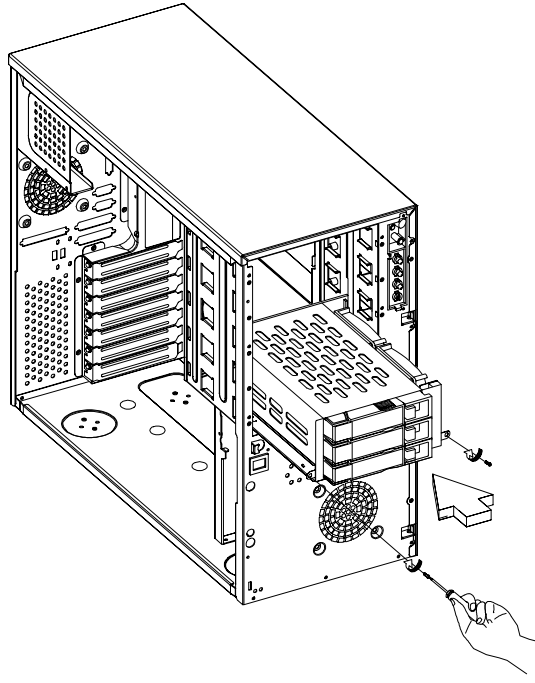
To install the hot-swap cage into the housing:

1. Open the front panel and remove the left panel of the housing. See section 1.4 for more information on opening the housing panels.

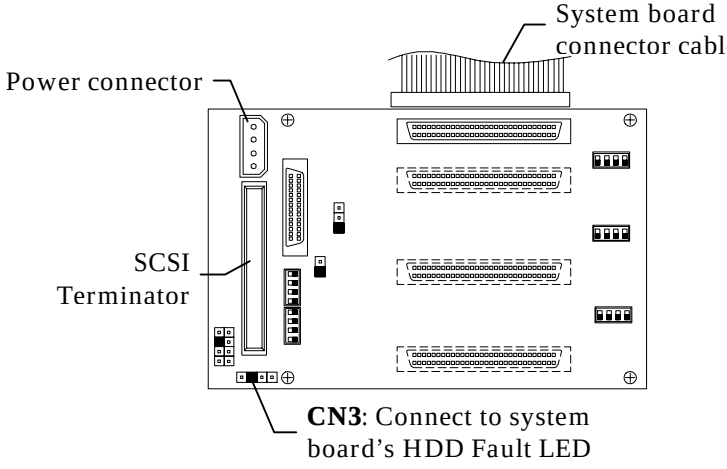
2. Attach the drive guides on the sides of the hot-swap cage with two screws on each side. The drive guides come with the hot-swap cage.



3. Insert the hot-swap cage into the housing and secure the hot-swap cage with two screws as shown below.



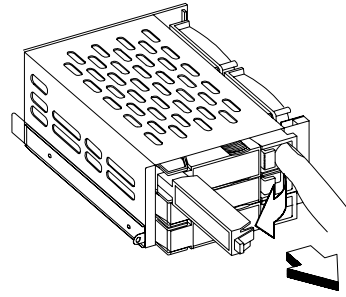
4. Attach the power cable, the SCSI terminator, the HDD fault LED cable, and the system board connector cable to the backplane board and attach the other end of the connector cable to the system board. For the location of the SCSI connector, please refer to Chapter 2, System Board.



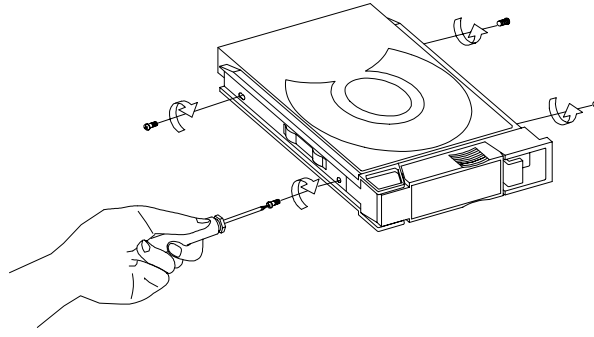
Installing and Removing a BPL3 Hard Disk Drive Tray

To remove and install a BPL3 Hard Disk Drive Tray:

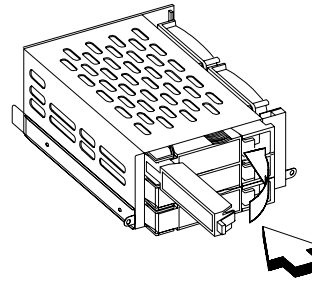
1. Use your finger to release the drive tray and then pull it out.



2. Place a hard disk on the tray. Secure it with four screws as shown below.



3. Insert the tray into the hot-swap cage with the lever still extended. Make sure that the drive is properly inserted before closing the lever.

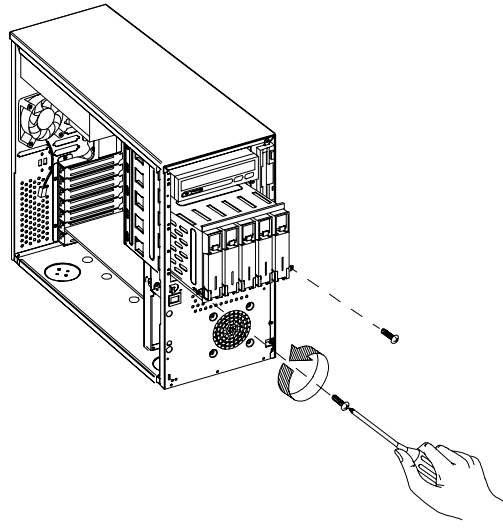


Installing a BPL5 Hot-Swap Cage

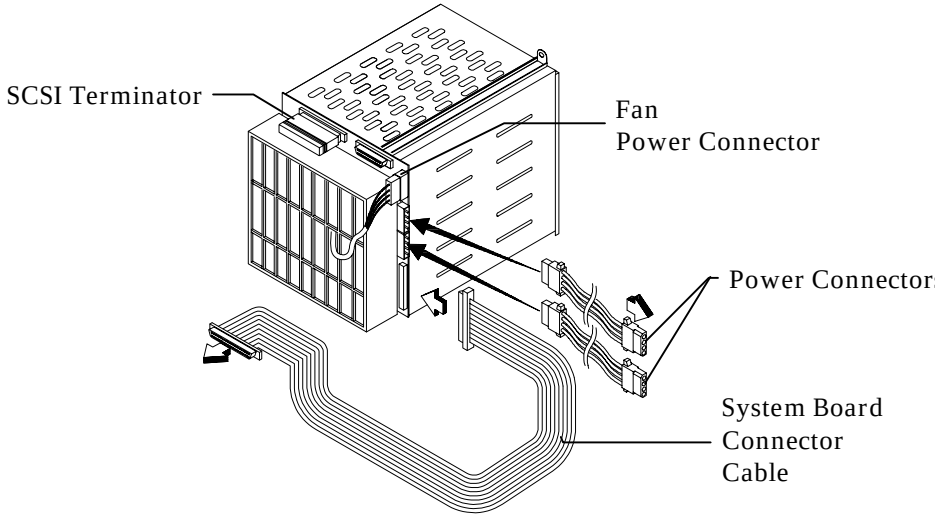
To install the hot-swap cage into the housing:

1. Open the front panel and remove the left panel of the housing. See section 1.4 for more information on opening the housing panels.

2. Insert the hot-swap cage into the housing and secure the hot-swap cage with two screws as shown below.



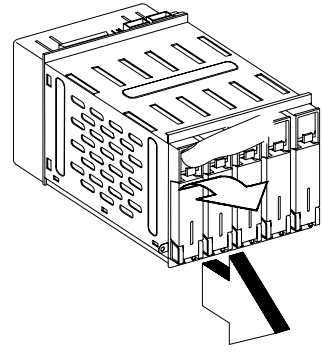
3. Attach the power cable, the SCSI terminator, the HDD fault LED cable, and the system board connector cable to the backplane board and attach the other end of the connector cable to the system board. For the location of the SCSI connector, please refer to Chapter 2, System Board.



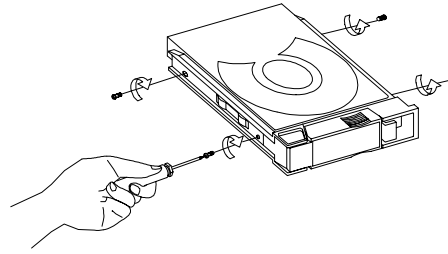
Installing and Removing a BPL5 Hard Disk Drive Tray

To remove and install a BPL5 Hard Disk Drive Tray:

1. Use your finger to release the drive tray and then pull it out.



2. Place a hard disk on the tray. Secure it with four screws.



3. Insert the tray into the hot-swap cage with the lever still extended. Make sure that the drive is properly inserted before closing the lever.

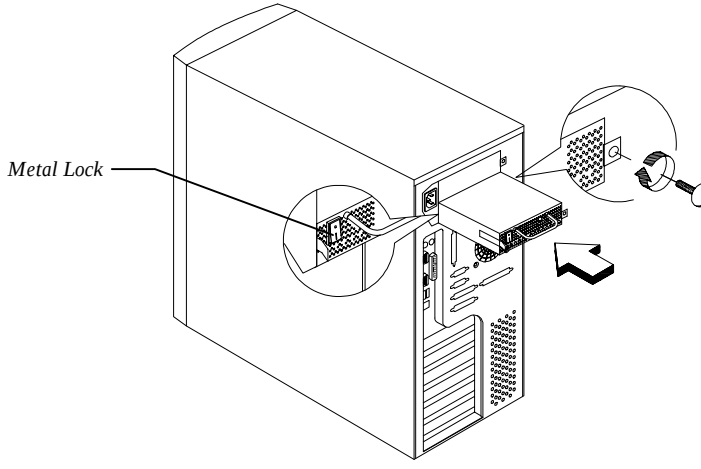
1.7 Installing and Removing a Hot-swappable Redundant Power Supply Module

The power subsystem consists of two hot-swappable power supply module bays that allows the installation of two 337-watts power supply modules in a hot-swappable redundant configuration. A redundant power configuration enables a fully-configured system to continue running even if one power supply fails.

The system housing comes with one hot-swappable redundant power supply installed.

To install a hot-swappable redundant power supply:

1. Insert the power supply into the housing. The metal lock will click into place when the power supply is fully installed in the housing.



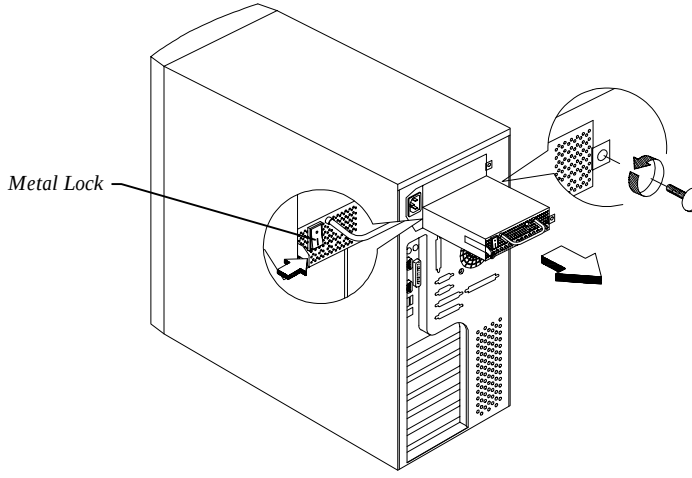
Make sure that the power supply is properly inserted, as shown in the figure above.

2. Secure the power supply with a thumbscrew.

To remove a hot-swappable redundant power supply:

1. Turn the thumbscrew counter-clockwise to loosen the power supply.

2. Push the metal lock towards the center as shown below and gently pull the power supply out using the metal handle.



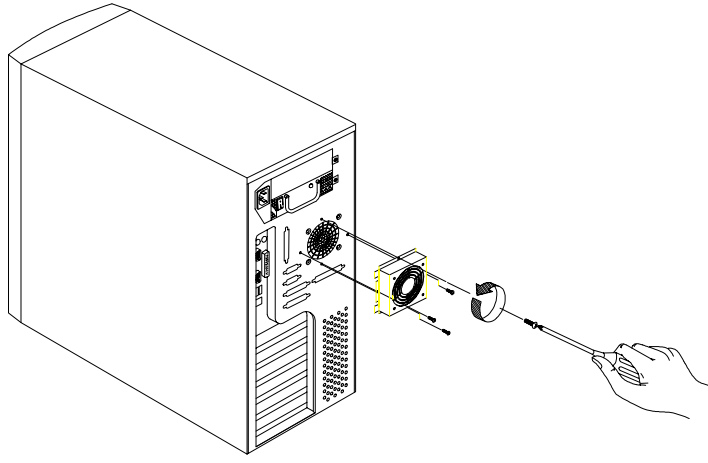
The power supply subsystem should supply a minimum of 337-watts to the whole system. If you only have one power supply or if you have two power supplies and are planning to remove both of them, remember to turn off the power first and disconnect the power cord from the electrical outlet.

1.8 Replacing the External Redundant System Fan

An external redundant fan is pre-installed at the factory. This allows the system to operate properly if the internal housing fan fails.

To replace the external redundant fan:

1. Open the front panel and remove the left panel of the housing. See section 1.4 for more information on opening the housing panels.
2. Use a screwdriver to push open the plastic peg located below the internal system fan module.
3. Insert the redundant fan into the fan cage and attach the fan cage to the system housing with four screws as shown below.

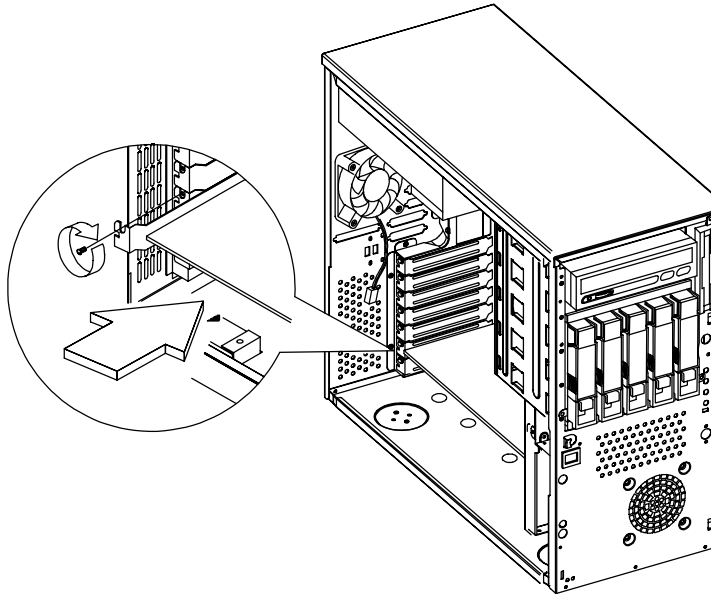


4. Insert the fan cable into the peg hole and attach the cable to the system board. Please refer to Chapter 2 (System Board) for the location of the fan connector.

1.9 Installing an Expansion Board

To install an expansion board:

1. Remove an expansion slot bracket cover. Save the screw to secure the expansion board.



2. Align an expansion board with the open slot and insert the golden fingers into the expansion bus connector.

3. Secure the board with the screw.

1.10 SCSI Backplane Board

You can install either one BPL3 hot-swap cage or one BPL5 hot-swap cage into the system housing. The system housing comes with one BPL5 hot-swap cage.

See section 1.6 for information about installing BPL3 and BPL5 hot-swap cages and drive trays.

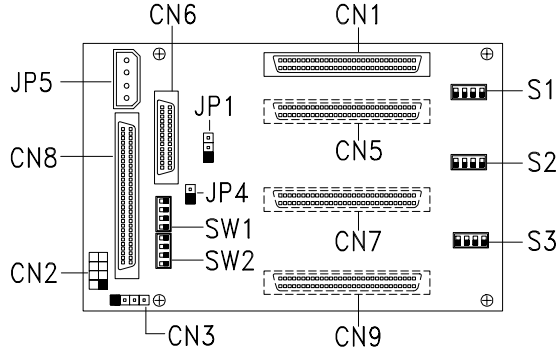
1.10.1 BPL3 LVD SCSI Backplane Board

The LVD SCSI hot-swap cage includes a hot plug SCA single-ended backplane, LED board, and the hard drive cage itself. It supports three 1-inch SCA-II SCSI hard drives in one channel with active terminator built-in. The SCS-II connector design allows for the addition and removal of SCSI drives without shutting down the system.

The BPL3 hot-swap cage box includes the following components:

- One hot-swap cage (with backplane board attached)
- Three hard disk drive trays
- One system board connector cable
- Two hard disk drive fault LED connector cables

Jumpers and Connectors — BPL3 Backplane Board



Jumper	Setting	Function
JP1		**I^2C Buffer ID**
	1-2	21h
	2-3	23h
JP4		**Terminator Power Source**
	Short	Both from Backplane and Host
	Open	Only from Host

Connector	Description
CN1	SCSI 68-pin P connector - In
CN2	Front power LED connector
CN3	I^2C Buffer connector
CN5	Slot 1
CN7	Slot 2
CN8	SCSI 68-pin connector - Out
CN9	Slot 3
JP5	Power connector
S1	Slot 1 ID switch
S2	Slot 2 ID switch
S3	Slot 3 ID switch

1.10.2 BPL5 LVD SCSI Backplane Board

The LVD SCSI hot-swap cage includes a hot plug SCA LVD backplane, LED board, and the hard drive cage itself. It supports five 1-inch SCA SCSI hard drives in one channel with active terminator built-in. The SCA connector design allows for the addition and removal of SCSI drives without shutting down the system.

The BPL5 hot-swap cage box includes the following components:

- One hot-swap cage (with backplane board attached)
- Five hard disk drive trays
- One system board connector cable
- Two hard disk drive fault LED connector cables

Features

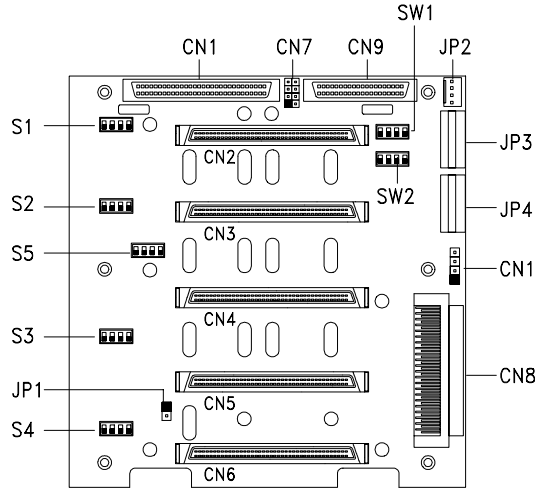
The backplane board has the following major features:

- "Hot-swap" feature that allows replacement of hard drives even when the system is in full operation.
- Indicates hard disk drive failure through a front panel LED.
- Supports Ultra2 SCSI SCA disk drives.
- SCSI ID strapping that allows LVD SCSI HDD ID configuration through the backplane switches, instead of configuring the individual drive IDs.

We recommend setting the IDs on the backplane board instead of the individual drives. Refer to the following section for the location of the SCSI connector ID switches.

If you set the IDs on the backplane board, be sure to remove all jumper connectors on the SCSI drive before installing it in the system.

Jumpers and Connectors — BPL5 Backplane Board



Jumper	Setting	Function
JP1	Short Open	**Terminator Power Source** Both from Backplane and Host Only from Host
SW1	Off	Reserved
SW2	Off	Optional daughterboard

Connector	Description
CN1	SCSI 68-pin P connector - Out
CN2	Slot 1
CN3	Slot 2
CN4	Slot 3
CN5	Slot 4
CN6	Slot 5
CN7	Front power LED connector

Connector	Description
CN8	SCSI 68-pin P connector - In
CN9	Optional daughterboard (Reserved)
CN10	I^2C buffer connector
JP2	4-pin FAN connector
JP3[1]	Power connector
JP4	Power connector
JP5	Reserved
S1[2]	Slot 1 ID switch
S2	Slot 2 ID switch
S3	Slot 3 ID switch
S4	Slot 4 ID switch
S5	Slot 5 ID switch

[1] Due to the SCSI backplane board's loading requirements, you will need to connect power to both power connectors on the backplane board.

[2] When you use the LVD SCSI hot-swap cage to arrange your system hard drives, please remove all the jumpers on each SCSI hard drive and use the switches on the backplane board (S1-S5) to set the hard drive's ID.

Chapter 2 System Board

2.1 Features

The Altos 1100E system board is a dual-processor system board built on an ATX baseboard using up to two Intel Pentium® III processors. It is integrated with the Intel 440BX system controller, which consists of the PCI/AGP controller and the PCI/ISA IDE accelerator (PIIX4).

The PCI/AGP controller host bus interface supports Pentium III processors with 100 MHz bus frequency. It also provides a 72-bit DRAM controller that supports registered PC100 ECC synchronous DRAM DIMMs. The PCI/AGP controller introduces a new technology, which is the Accelerated Graphics Port (AGP) interface. Supporting up to 133 MHz data transfer rate, the AGP interface boosts graphics performance.

The PIIX4 is a multifunctional PCI device controller implementing system functions including PCI IDE, and universal serial bus (USB) host/hub. It also supports Ultra DMA/33 synchronous DMA-compatible devices.

The four DIMM sockets on board allow memory upgrade to a maximum of 1024 MB and supports 72-bit DRAM using registered PC100 ECC synchronous DIMMs.

The system board also provides two USB (Universal Serial Bus) connectors, and other standard features such as two UART NS16C550 serial ports, one enhanced parallel port with Enhanced Parallel Port (EPP)/Extended Capabilities Port (ECP) feature, a diskette drive interface, and two embedded Enhanced IDE interfaces.

The system board supports two manageability features: Advanced Server Manager (ASM) Pro and Remote Diagnostic Manager (RDM). ASM Pro detects problems in:

- CPU thermal condition
- CPU working voltage detection (±12V / ±5V / 3.3V / 1.5V)
- PCI bus utilization calculation

It also detects if the CPU fan or the chassis fan malfunctions. RDM allows execution of the RDM diagnostic program from a remote RDM station to fix detected problems or to reboot the system.

ASM Pro provides online manageability, while RDM provides offline manageability.

Refer to the *ASM Pro User's Guide* and the *RDM User's Guide* for more information.

2.2 Major Components

The system board has the following major components:

- Supports dual Intel Pentium® III processors
- Four DIMM sockets that accept 128 and 256 MB DIMMs with a maximum of 1024 MB system memory
- Two ISA, four PCI, and one AGP bus slots (one PCI and ISA shared slot)
- 512-KB Flash ROM for system BIOS
- 512-KB pipelined-burst second-level cache built-in Pentium III processor
- System clock/calendar with battery backup
- I/O APIC device that provides support for SMP interrupts
- Integrates an enhanced PCI local bus IDE controller
- Intel 440BX chipset that supports AGP (Accelerated Graphics Port) and Ultra DMA/33 functions
- RDM daughter board
- EIDE and diskette drive interfaces
- Auxiliary power connector for the switching power supply (SPS)
- Super I/O, memory, and Advanced Server Management (ASM) controller chipsets
- External ports:
    - USB connector
    - RJ-45 jack
    - Parallel port
    - PS/2-compatible keyboard port
    - PS/2-compatible mouse port
    - Serial port 1 and 2

2.3 System Board Layout

Figure 2-1 shows the system board components.

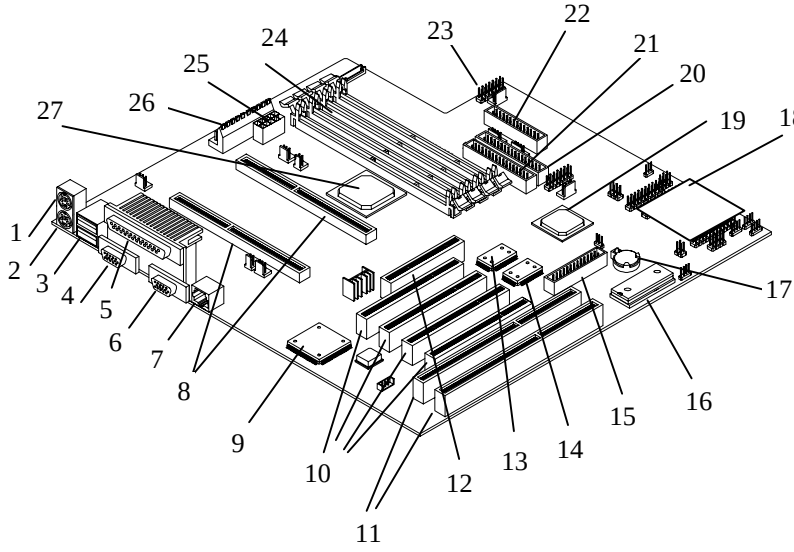


Figure 2-1 System Board Layout

1 *Mouse port*
2 *Keyboard port*
3 *USB ports*
4 *Serial port 2*
5 *Parallel port*
6 *Serial port 1*
7 *RJ-45*
8 *CPU slots*
9 *Intel 82558B chipset*
10 *PCI slots*
11 *ISA slots*
12 *AGP slot*
13 *IOAPIC**
14 *Super I/O controller*
15 *Reserved*
16 *System BIOS*
17 *CMOS Battery*
18 *RDM daughterboard*
19 *Intel 82371EB (PIIX4)*
20 *EIDE connector 1 (primary)*
21 *EIDE connector 2 (secondary)*
22 *FDD connector*
23 *Failed HDD LED signal connector*
24 *DIMM sockets*
25 *Power connector (Auxiliary)*
26 *Power connector*
27 *440BX chipset*

**I/O Advanced Programmable Interrupt Controller*

2.4 Jumpers and Connectors

This section describes the jumper and connector locations and settings.

2.4.1 Jumper and Connector Locations

Figure 2-2 shows the jumper and connector locations on the system board.

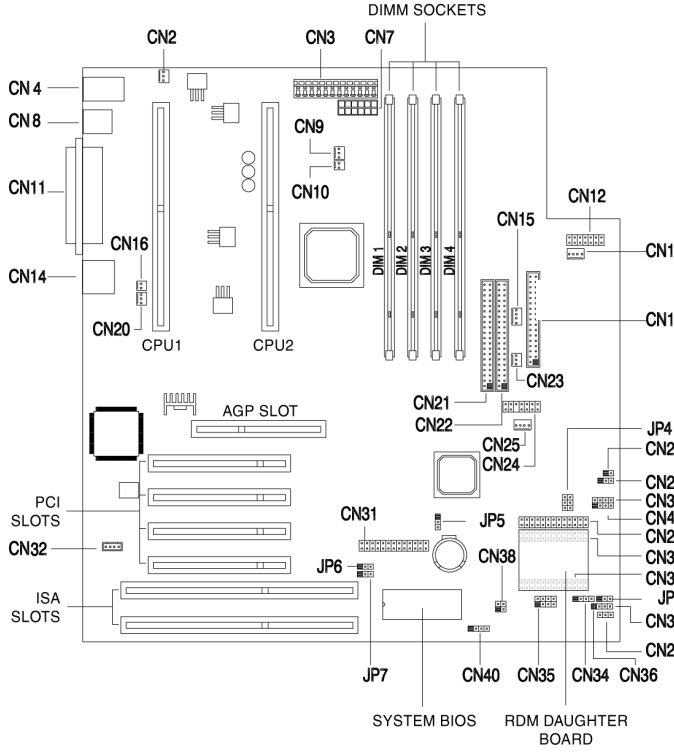


Figure 2-2 System Board Jumper and Connector Locations

Jumpers are prefixed "JP". Connectors are prefixed "CN". The blackened pin of a jumper or connector represents pin 1.

2.4.2 Jumper Settings

Table 2-1 lists the system board jumpers with their corresponding settings and functions.

Table 2-1 System Board Jumper Settings

Jumper	Setting	Function
JP4	1-2/4-5 2-3/5-6*	Reserved Reserved
JP5	1-2* 2-3	Reserved Reserved
BIOS Logo Select JP6	1-2* 2-3	Acer None
Password Security JP7	1-2 2-3*	Check password Bypass password
Sound Output JP8	1-2* 2-3	Buzzer Speaker

* Default

2.4.3 Connector Functions

Table 2-2 lists the different connectors on the system board and their respective functions.

Table 2-2 Connector Functions

Connector	Function
CN2	SPP control connector
CN3	Power core connector
CN4	PS/2 mouse (above) / keyboard (below) connectors
CN7	Power core connector (Auxiliary)
CN8	USB connectors
CN9	CPU2 Fan Connector
CN10	CPU2 Temperature connector
CN11	COM2 (lower left), COM1 (lower right), and Parallel port (above)
CN12	HDD Fail LED signal connector
CN13	Housing fan 1
CN14	RJ45 LAN socket
CN15	Housing fan 2
CN16	CPU1 Temperature connector
CN19	FDD connector
CN20	CPU1 Fan connector
CN21	Secondary IDE connector
CN22	Primary IDE connector
CN23	Housing fan 3
CN24	SPS power and fan monitoring
CN25	Housing fan 4
CN26	Reset switch
CN27	Power LED connector
CN28	Reserved
CN29	Housing HDD LED connector

Table 2-2 Connector Functions (continued)

Connector	Function
CN30	RDM connector
CN31	Reserved
CN32	Reserved
CN33	RDM connector
CN34	External Speaker connector
CN35	Reserved
CN36	Power switch
CN37	Chassis Intrusion switch connector
CN38	RDM LED connector
CN39	External HDD LED connector
CN40	External HDD LED connector
CN42	Reserved

2.5 Front Panel Connectors

The following figure shows the pin orientation of the front-panel connectors.

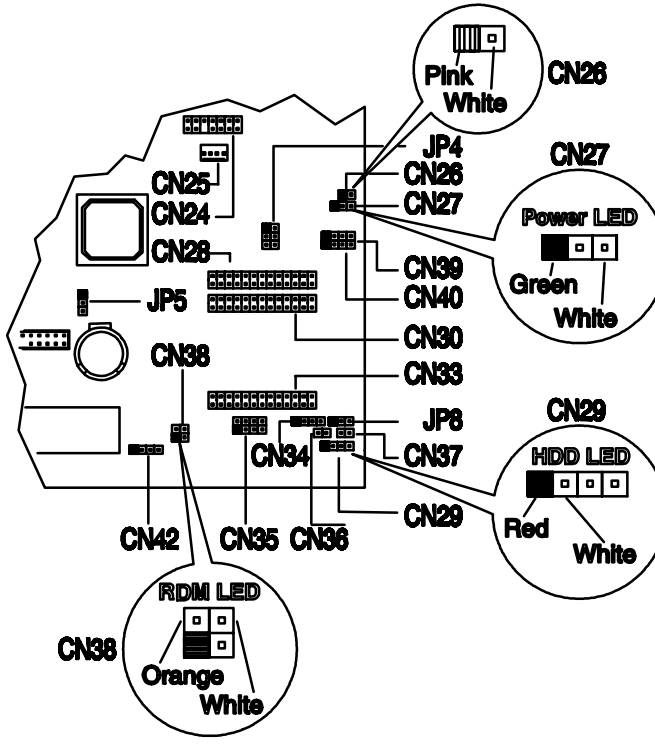


Figure 2-3 Front Panel Connectors

2.6 Installing Components

Before you install any system component, please read the following sections. These sections contain important ESD precautions, pre- and post-installation instructions.

Turn off the system power and unplug the power cord and all peripherals before opening the system or connecting or removing any peripheral device. Always turn on any external peripheral device before you turn on the system.

To avoid damaging the system, do not open the housing for service or upgrades, unless you are a qualified technician.

When you power off the system, the RDM module still receives direct current so that it can check the system's status. Be sure to unplug the power cord before you install or remove the RDM module.

2.6.1 ESD Precautions

Electrostatic discharge (ESD) can damage your processor, disk drives, expansion boards, and other components. Always observe the following precautions before you install a system component.

1. Do not remove a component from its protective packaging until you are ready to install it.

2. Wear a wrist grounding strap and attach it to a metal part of the system unit before handling components. If a wrist strap is not available, maintain contact with the system chassis throughout any procedure requiring ESD protection.

2.6.2 Pre-installation Instructions

Always observe the following before you install a system component:

1. Turn off the system power and unplug the power cable and all the peripherals connected to the unit before opening it.

2. Open the system according to the instructions in Chapter 1, System Housing.

3. Follow the ESD precautions in section 2.5.1 before handling a system component.

4. Remove any expansion boards or peripherals that block access.

5. See the following sections for specific instructions on the component you wish to install.

Do not attempt the procedures described in the following sections unless you are a qualified service technician.

2.6.3 Post-installation Instructions

Observe the following procedures after installing a system component:

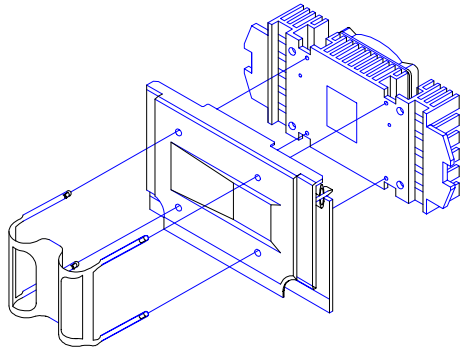
1. Check that the components are installed according to the instructions in their respective sections.
2. Make sure you have set all the required jumpers. See section 2.4 for the correct jumper settings.
3. Replace any expansion boards or peripherals that you removed earlier.
4. Replace the system cover.
5. Connect the necessary cables and turn on the system.

2.7 Installing and Removing a Heatsink

Your system comes with a fully assembled Pentium III processor connected to a heatsink. In the event that you need to install a new processor, you may need to install a heatsink as well.

To install a heatsink onto a Pentium III processor:

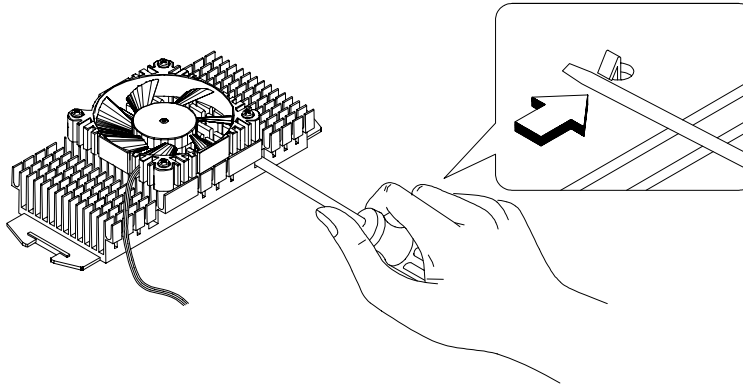
1. Insert the bracket through the holes in the processor, and then insert the ends



of the bracket into the heatsink as shown below

To remove the heatsink:

1. Disconnect the ends of the bracket as shown below, and separate the bracket, processor, and heatsink.



2.8 Installing a Pentium III Processor

Follow these steps to install a Pentium III processor into the socket on the CPU board.

The system settings are configured at the factory for the correct CPU frequency/ Memory DIMM combination. If you upgrade the CPU frequency to 300, 350, 400, or 450 MHz, the memory controller requires PC-100 DRAM DIMMs. Your system will not work properly if you use standard DIMMs with the higher speed CPUs. All of the installed DIMMs must have the same capabilities.

1. Press the processor module down until the edge connector snugly fits into the socket.

The edge connector of the Pentium module is slotted so that it only fits in one direction. Make sure the module groove matches the one on the processor socket.

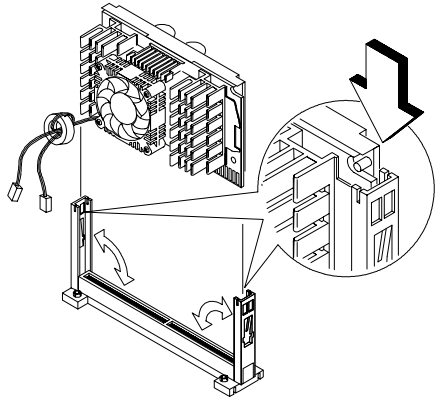


Figure 2-4 Installing a Pentium III Processor

2. Press the latches on the sides to lock the processor module into place.

3. Connect the fan and temperature connectors (see Figure 2-2 and Table 2-2):

   CPU1 fan connector – CN20
   CPU1 temperature connector – CN16
   CPU2 fan connector – CN9
   CPU2 temperature connector – CN10

2.9 Removing a Pentium III Processor

Follow these steps to remove the Pentium III processor module from the slot.

1. Remove the fan and temperature connectors (see Figure 2-2 and Table 2-2):

   CPU1 fan connector – CN20
   CPU1 temperature connector – CN16
   CPU2 fan connector – CN9
   CPU2 temperature connector – CN10

2. Unlock the latches that secure the processor module.

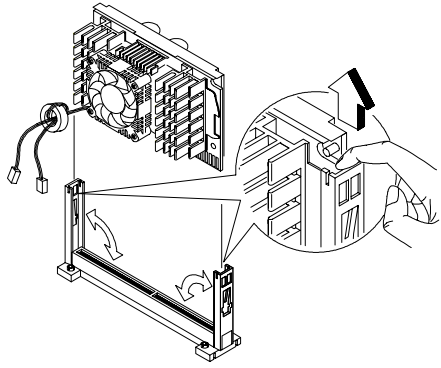


Figure 2-5 Unlocking the Module Latches

2. Firmly hold the processor module and pull it out of the socket.

2.10 Installing the Termination Board

When you use only one CPU, you must have a termination board installed in the empty slot.

Follow these steps to install the termination board:

1. Position the termination board over the empty slot.
2. Carefully insert the golden fingers of the termination board into the slot until the board fits completely.

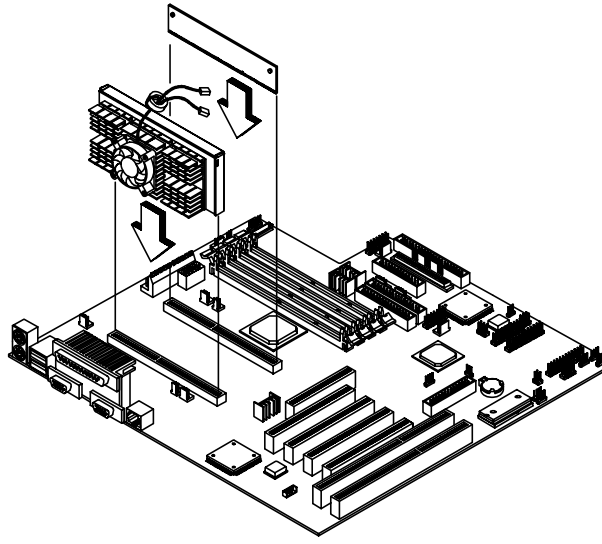


Figure 2-6 Installing the Termination Board

The termination board is pre-installed at the factory for uniprocessor configurations.

2.11 Memory Upgrade

The four 168-pin sockets onboard support Registered PC100 ECC SDRAM-type DIMMs. You may install 128 or 256-MB DIMMs for a maximum of 1024 MB system memory.

Each of the sockets represents one independent bank. This allows you to install DIMMs with different capacities to form a configuration.

2.11.1 Memory Configurations

Table 2-3 lists some system memory configurations. You may combine DIMMs with various capacities to form other combinations.

Table 2-3 Memory Configurations

DIMM1	DIMM2	DIMM3	DIMM4	Total Memory
128MB				128MB
128MB	128MB			256MB
128MB	128MB	128MB		384MB
128MB	128MB	128MB	128MB	512MB
256 MB				256 MB
256 MB	256 MB			512 MB
256 MB	256 MB	256 MB		768 MB
256 MB	256 MB	256 MB	256 MB	1 GB

2.11.2 Installing a DIMM

To install a DIMM, align it with the socket and press it down until the holding clips secure the DIMM in place.

The DIMM socket is slotted to ensure proper installation. If you slip in a DIMM but it does not completely fit, you may have inserted it the wrong way. Reverse the orientation of the DIMM.

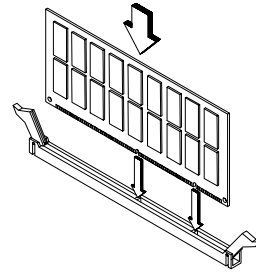


Figure 2-7 Installing a DIMM

2.11.3 Removing a DIMM

To remove a DIMM, press the holding clips on both sides of the socket outward to release the DIMM.

Place your forefingers on the top of the DIMM before you press the holding clips to gently disengage the DIMM from the socket.

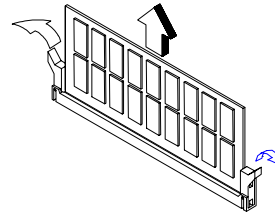


Figure 2-8 Removing a DIMM

2.11.4 Reconfiguring the System

Reconfigure the system after installing or removing DIMMs.

Follow these steps to reconfigure the system:

1. Power on the system.

   A memory error message appears, indicating that the total memory does not match the value stored in CMOS.

2. Press CTRL + ALT + ESC.
3. Press ESC twice to exit Setup and reboot the system. The system boots with the new memory configuration.

2.12 Installing Expansion Cards

2.12.1 Installing 32 Bit PCI Cards

To install 32 bit PCI cards:

1. Locate the PCI slots on the system board.
2. Remove the bracket on the housing opposite an empty PCI slot.
3. Insert a PCI card into the slot. Make sure that the card is properly seated.
4. Secure the card to the housing with a screw.

When you turn on the system, BIOS automatically detects and assigns resources to the PCI devices.

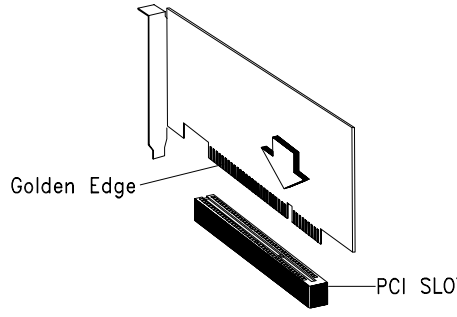


Figure 2-9 Installing a PCI Card

2.12.2 Installing an AGP Card

When installing an AGP card, make sure that the IRQ required by the card is not already assigned to a PCI or ISA device to avoid resource conflicts.

Follow these steps when installing an AGP card:

1. Locate the AGP slot on the main board. See Figure 2-1 for the slot location.

2. Insert an AGP card into the slot. Make sure that the card is properly seated.

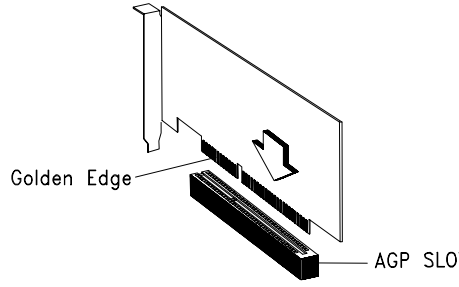


Figure 2-10 Installing an AGP Card

When you turn on the system, BIOS automatically detects and assigns resources to the AGP device.

BIOS detects and configures only PnP cards.

2.13 ASM Pro

ASM Pro is a server management tool based on industry standards. It is designed to help server supervisors and management information system (MIS) personnel to detect errors or potential trouble spots in their network servers through a single management station.

ASM Pro consists of two major parts:

- ASM-Station - a Windows-based management station software that communicates with servers equipped with ASM-Agent(s).
- ASM-Agent(s) – agent software for the individual servers managed by ASM-Station.

Refer to the ASM Pro user's manual for more information.

2.14 Remote Diagnostic Management

Remote Diagnostic Manager (RDM) is a server management tool that uses modems and telephone lines to control a host of servers from a remote station. In the event of failure, RDM monitors and analyzes the server condition, updates the BIOS settings if necessary, reboots the server, and quickly returns it to normal operation. This capability to execute the RDM functions from a remote site bridges the distance barrier in fixing server problems and reduces server down time.

2.14.1 Installing the RDM Module

The system board comes with the RDM module installed.

Follow these steps if you need to re-install the RDM module and connect the cable:

1. See Figures 2-1 and 2-2 for the location of the RDM connectors.

2. Gently insert the RDM module into CN30 and CN33. The module fits only in one direction. Do not force it into the connectors.

3. Connect the RDM LED (CN38).

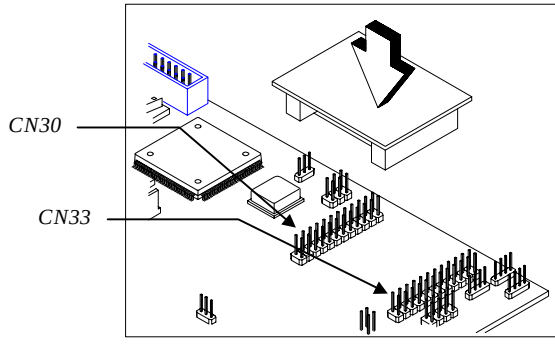


Figure 2-11 Installing the RDM Module

Refer to the *RDM User's Guide* for detailed instructions on RDM installation.

2.15 Error Messages

Do not continue using the computer if you receive an error message of any type. Note the message and take corrective action. This section explains the different types of error messages and corresponding corrective measures.

There are two general types of error messages:

- Software
- System

2.15.1 Software Error Messages

Software error messages are returned by your operating system or application. These messages typically occur after you boot the operating system or when you run your applications. If you receive this type of message, consult your application or operating system manual for help.

2.15.2 System Error Messages

A system error message indicates a problem with the computer itself. A message of this type normally appears during the power-on self-test, before the operating system prompt appears.

Table 2-4 lists possible system error messages.

Table 2-4 System Error Messages

Message	Action
CMOS Battery Error	Replace the battery or contact your dealer.
CMOS Checksum Error	Run Setup. See Section 3-1.
CPU BIOS Update Code Mismatch	Contact your dealer.
Diskette Drive Controller Error or Not Installed	Check and connect the control cable to the diskette controller.
Diskette Drive Error	Check the CMOS settings in Setup and the diskette drive cable connections.
Diskette Drive A Type Mismatch	Run Setup and select the proper drive type. See Section 3-1.
Diskette Drive B Type Mismatch	Run Setup and select the proper drive type. See Section 3-1.
Equipment Configuration Error	Modify DRAM configuration to agree with one of the options in Table 2-4.
Hard Disk Controller Error	Run Setup. See Section 3-1.
Hard Disk 0 Error	Check all cable connections. Replace hard disk.
Hard Disk 1 Error	Check all cable connections. Replace hard disk.
Hard Disk 0 Extended Type Error	Run Setup. See Section 3-1.
Hard Disk 1 Extended Type Error	Run Setup. See Section 3-1.
I/O Parity Error	Contact your dealer.
Keyboard Error or No Keyboard Connected	Check and connect the keyboard to the system unit.
Keyboard Interface Error	Replace the keyboard or contact your dealer.

Table 2-4 System Error Messages (continued)

Message	Action
Memory Error at: MMMM:SSSS:OOO (W:XXXX, R:YYYY) where: M: MB, S: Segment, O: Offset, X/Y: write/read pattern	Check DIMMs on the system board. Contact your dealer.
Memory Size Mismatch CPU Clock Mismatch	Check the memory size based on the system specifications. Check the internal cable connections. If you are sure that connections and values are correct, ignore the message. If the message reappears, ask for technical assistance.
Onboard Serial Port 1 Conflict	Run Setup (See Section 3.1) and disable the port.
Onboard Serial Port 2 Conflict	Run Setup (See Section 3.1) and disable the port.
Onboard Parallel Port Conflict	Run Setup (See Section 3.1) and disable the port.
Pointing Device Error	Check and connect pointing device.
Pointing Device Interface Error	Replace the pointing device or contact your dealer.
Press F1 key to continue or Ctrl-Alt-Esc for Setup	Press F1 or CTRL + ALT + ESC to enter Setup.
Real Time Clock Error	Run Setup (See Section 3.1) and set the time and date.
Press Esc to turn off NMI, any key to reboot	Press ESC to disregard the NMI error. Press any other key to reboot the system.

2.15.3 Correcting Error Conditions

As a general rule, if an error message says "Press F1 to continue," it is caused by a configuration problem, which can be easily corrected. An equipment malfunction is more likely to cause a fatal error, i.e., an error that causes complete system failure.

Here are some corrective measures for error conditions:

1. Run Setup (See section 3.1). You must know the correct configuration values for your system before you enter Setup, which is why you should write them down when the system is correctly configured. An incorrect configuration is a major cause of power-on error messages, especially for a new system.

2. Remove the system unit cover (See Chapter 1, System Housing). Check that the jumpers on the system board and any expansion boards are set correctly (see section 2.4 for system board jumper information).

3. Check that all connectors and boards are securely plugged in.

If you go through the corrective steps above and still receive an error message, the cause may be an equipment malfunction.

If you are sure that your configuration values are correct and your battery is in good condition, the problem may lie in a damaged or defective chip.

In either case, contact an authorized service center for assistance.

Chapter 3 BIOS Utility

Most systems are already configured by the manufacturer or the dealer. There is no need to run Setup when starting the computer unless you get a Run Setup message.

The Setup program loads configuration values into the battery-backed nonvolatile memory called CMOS RAM. This memory area is not part of the system RAM.

If you repeatedly receive Run Setup messages, the battery may be bad. In this case, the system cannot retain configuration values in CMOS. Ask a qualified technician for assistance.

3.1 Entering Setup

To enter Setup, press the key combination CTRL+ALT+ESC.

You must press CTRL+ALT+ESC while the system is booting. This key combination does not work any other time.

The BIOS Utility main menu then appears:

BIOS Utility

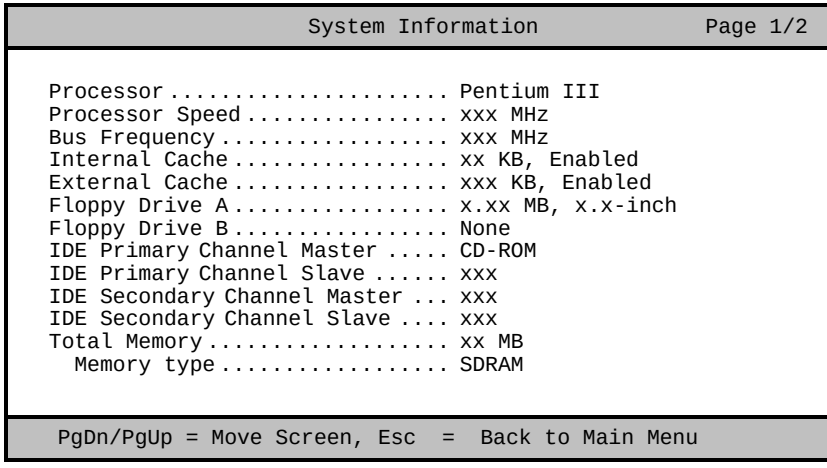
System Information
Product Information
Disk Drives
Power Management
Startup Configuration
Advanced Configuration
System Security
Date and Time
Remote Diagnostic Configuration
Load Default Settings
Abort Settings Change

↑↓←→ = Move highlight bar, ↵ = Select, Esc = Exit

The parameters on the screens show default values. These values may not be the same as those in your system.

3.2 System Information

The following screen appears if you select System Information from the main menu.


System Information Page 1/2
Processor ..... Pentium III
Processor Speed ..... xxx MHz
Bus Frequency ..... xxx MHz
Internal Cache ..... xx KB, Enabled
External Cache ..... xxx KB, Enabled
Floppy Drive A ..... x.xx MB, x.x-inch
Floppy Drive B ..... None
IDE Primary Channel Master ..... CD-ROM
IDE Primary Channel Slave xxx
IDE Secondary Channel Master ... xxx
IDE Secondary Channel Slave xxx
Total Memory ..... xx MB
Memory type ..... SDRAM
PgDn/PgUp = Move Screen, Esc = Back to Main Menu

The System Information menu shows the current basic configuration of your system.

The command line at the bottom of the menu tells you how to move from one screen to another and return to the main menu.

Press PGDN to move to the next page or PGUP to return to the previous page.

Press ESC to return to the main menu.

The following screen shows page 2 of the System Information menu.

```
                        System Information              Page 2/2

    Serial Port 1.....................3F8h, IRQ 4
    Serial Port 2.....................2F8h, IRQ 3
    Parallel Port .....................378h, IRQ 7
    Pointing Device...................Installed
    Memory Parity Mode................ECC
    Onboard USB.......................Disabled

    PgDn/PgUp = Move Screen, Esc  =  Back to Main Menu
```

The following sections explain the parameters.

The parameters in the System Information screens show default settings. These settings are non-configurable from these screens. Select other configuration options from the BIOS Utility main menu to change the settings.

3.2.1 Processor

The Processor parameter specifies the type of processor currently installed in your system. The system is designed to support the Intel Pentium III processor.

3.2.2 Processor Speed

The Processor Speed parameter specifies the speed of the CPU currently installed in your system. The system supports up to two Intel Pentium III processors.

3.2.3 Bus Frequency

The Bus Frequency parameter specifies the system external clock. The bus frequency should always be set to 100 MHz.

3.2.4 Internal Cache

This parameter specifies the first-level or the internal memory size (i.e., the memory integrated into the CPU), and whether it is enabled or disabled. For information on how to configure the system memory, see section 3.7.3.

3.2.5 External Cache

This parameter specifies the second-level cache memory size currently supported by the system, and whether it is enabled or disabled. For information on how to configure the system memory, see section 3.7.3.

3.2.6 Floppy Drive A

This parameter specifies the type of drive designated as Floppy Drive A. For information on how to configure the floppy drives, see section 3.4.1.

3.2.7 Floppy Drive B

This parameter specifies the system's current floppy drive B settings. For information on how to configure the floppy drives, see section 3.4.1.

3.2.8 IDE Primary Channel Master

This parameter specifies the current configuration of the IDE device connected to the master port of the primary IDE channel. For information on how to configure IDE devices, see section 3.4.2.

3.2.9 IDE Primary Channel Slave

This parameter specifies the current configuration of the IDE device connected to the slave port of the primary IDE channel. For information on how to configure IDE devices, see section 3.4.2.

3.2.10 IDE Secondary Channel Master

This parameter specifies the current configuration of the IDE device connected to the master port of the secondary IDE channel. For information on how to configure IDE devices, see section 3.4.2.

3.2.11 IDE Secondary Channel Slave

This parameter specifies the current configuration of the IDE device connected to the slave port of the secondary IDE channel. For information on how to configure IDE devices, see section 3.4.2.

3.2.12 Total Memory

This parameter specifies the total system memory. The memory size is automatically detected by BIOS during the POST. If you install additional memory, the system automatically adjusts this parameter to display the new memory size.

Memory Type

This parameter indicates the type of memory installed in the system.

3.2.13 Serial Port 1

This parameter indicates the serial port 1 address and IRQ setting.

3.2.14 Serial Port 2

This parameter indicates the serial port 2 address and IRQ setting.

3.2.15 Parallel Port

This parameter indicates the parallel port address and IRQ setting.

3.2.16 Pointing Device

The BIOS utility automatically detects if there is a mouse connected to the system. If there is, this parameter displays the **Installed** setting. Otherwise, this is set to **None**.

3.2.17 Memory Parity Mode

This parameter indicates the setting of the memory parity mode. The default setting is **ECC**.

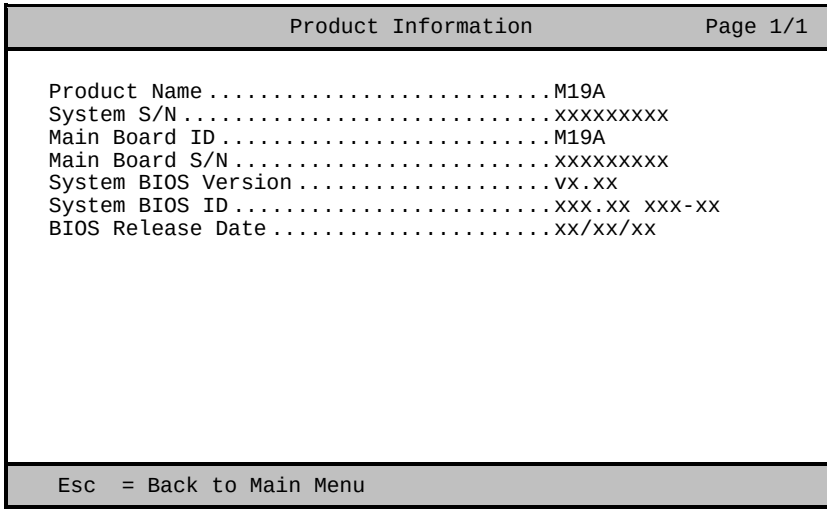
3.2.18 Onboard USB

This parameter specifies whether the onboard USB controller is enabled or not. For information on how to enable or disable USB, see section 3.7.1.

3.3 Product Information

The Product Information contains general data about the system. It includes the product name, serial number, BIOS version, etc. This information is necessary for troubleshooting and may be required when asking for technical support.

The following screen shows the Product Information items.


Product Information Page 1/1
Product Name M19A
System S/N xxxxxxxxx
Main Board ID M19A
Main Board S/N xxxxxxxxx
System BIOS Version .....vx.xx
System BIOS ID .....xxx.xx xxx-xx
BIOS Release Date .....xx/xx/xx
Esc = Back to Main Menu

3.3.1 Product Name

This parameter specifies the official name of the system.

3.3.2 System S/N

This parameter specifies the system's serial number.

3.3.3 Main Board ID

This parameter specifies the system board's identification number.

3.3.4 Main Board S/N

This parameter specifies the system board's serial number.

3.3.5 System BIOS Version

This parameter specifies the version of the BIOS utility.

3.3.6 System BIOS ID

This parameter specifies the identification number of the BIOS utility.

3.3.7 BIOS Release Date

This parameter specifies the official date the BIOS version was released.

3.4 Disk Drives

The Disk Drives menu lets you configure the system hard disk and disk drive settings. If your hard disk supports the enhanced IDE features, you may set the functions using this menu.

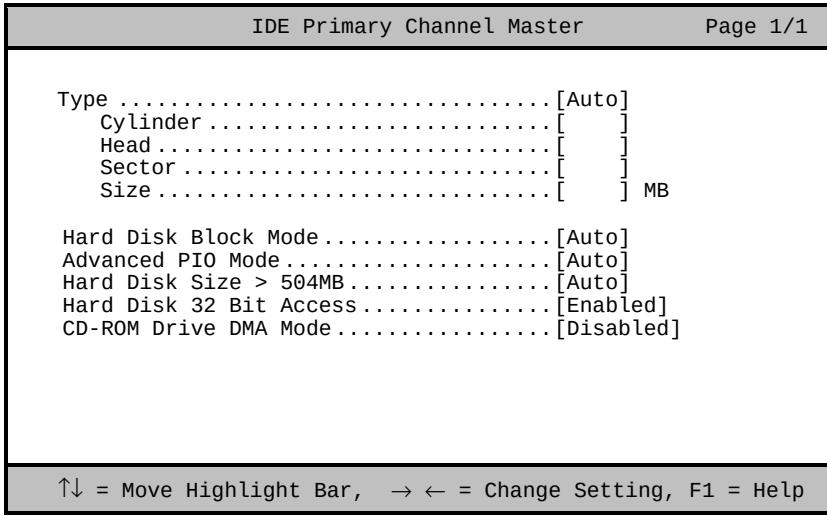
The following screen shows the Disk Drives parameters and their default settings:

```
                          Disk Drives                    Page 1/1


  Floppy Drive A  ..........[xx-MB, xx-inch]
  Floppy Drive B  ..........[None]

      IDE Primary Channel Master
      IDE Primary Channel Slave
      IDE Secondary Channel Master
      IDE Secondary Channel Slave

↑↓ = Move Highlight Bar,  → ← = Change Setting, F1 = Help
```

The triangle mark that precedes an item within a menu indicates that there is a detailed menu for that particular item. Select the item to display the menu.

From the Disk Drives screen, select the IDE Primary Channel Master, IDE Primary Channel Slave, the IDE Secondary Channel Master, or IDE Secondary Channel Slave items to display their respective menus.

Selecting the IDE Primary Channel Master item displays the following menu.


IDE Primary Channel Master
Page 1/1
Type .....[Auto]
Cylinder .....[ ]
Head .....[ ]
Sector .....[ ]
Size .....[ ] MB
Hard Disk Block Mode .....[Auto]
Advanced PIO Mode .....[Auto]
Hard Disk Size > 504MB .....[Auto]
Hard Disk 32 Bit Access .....[Enabled]
CD-ROM Drive DMA Mode .....[Disabled]
↑↓ = Move Highlight Bar, → ← = Change Setting, F1 = Help

The parameters for the IDE Primary Channel Slave, the IDE Secondary Channel Master, and IDE Secondary Channel Slave menus are the same as in the above screen.

3.4.1 Floppy Drives

To configure the first floppy drive (drive A), highlight the Floppy Drive A parameter. Press → or ← key to view the options, then select the appropriate value.

Possible settings for the Floppy Drive parameters:

- [None]
- [360 KB, 5.25-inch]
- [1.2 MB, 5.25-inch]
- [720 KB, 3.5-inch]
- [1.44 MB, 3.5-inch]
- [2.88 MB, 3.5-inch]

Follow the same procedure to configure floppy drive B. Choose **None** if you do not have a second floppy drive.

3.4.2 IDE Drives

Although IDE options are provided in the system BIOS, IDE hard disk drives are neither qualified nor supported in this server.

There are four IDE drive option items under the Disk Drives menu. Select the IDE Primary Channel Master item (or the IDE Secondary Channel Master) if you want to configure an IDE device set as master. Select the IDE Primary Channel Slave item (or the IDE Secondary Channel Slave) if you want to configure an IDE device set as slave.

To configure an IDE device designated as master:

1. Select the IDE Primary Channel Master (or the IDE Secondary Channel Master) option to display its menu.

2. Highlight the parameter Type, then press → or ← to display the IDE drive types with their respective values for cylinder, head, sector, and size.

   You may do any of the following:

   - Select the type that corresponds to your IDE hard disk drive.
   - If you do not know the exact type of your IDE device, select the **Auto** option to let the BIOS utility automatically detect the installed IDE drive type.
   - You may save the values under the option **User**. The next time you boot the system, the BIOS utility does not have to auto-configure your IDE drive as it detects the saved disk information during POST.

We recommend that you copy the IDE disk drive values and keep them in a safe place in case you have to reconfigure the disk in the future.

   - If you have installed an IDE hard disk that was previously formatted but does not use the disk native parameters or structure, i.e., the disk may be formatted according to the user-specified number of cylinders, heads, and sectors, select the **User** option. Then enter the appropriate drive information.
   - If there is no device connected, choose **None**.

To configure an IDE device designated as slave:

1. Select the IDE Primary Channel Slave (or the IDE Secondary Channel Slave) option to display its menu.

2. Highlight the parameter Type, then press → or ← to display the IDE drive types with their respective values for cylinder, head, sector, and size. Refer to the above procedure for configuring a master device.

Hard Disk Block Mode

This function enhances disk performance depending on the hard disk in use. If you set this parameter to **Auto**, the BIOS utility automatically detects if the installed hard disk drive supports the Block Mode function. If supported, it allows data transfer in block (multiple sectors) at a rate of 256 bytes per cycle. To disregard the feature, change the setting to **Disabled**.

Advanced PIO Mode

When set to **Auto**, the BIOS utility automatically detects if the installed hard disk supports the function. If supported, it allows for faster data recovery and read / write timing that reduces hard disk activity time. This results in better hard disk performance. To disregard the feature, change the setting to **Disabled**.

Hard Disk Size > 504 MB

When set to **Auto**, the BIOS utility automatically detects if the installed hard disk supports the function. If supported, it allows you to use a hard disk with a capacity of more than 504 MB. This is made possible through the Logical Block Address (LBA) mode translation. However, enhanced IDE feature works only under DOS, Windows 3.x, and Windows 95 / 98 environments. Other operating systems require this parameter to be set to **Disabled**.

Hard Disk 32-bit Access

Enabling this parameter improves system performance by allowing the use of the 32-bit hard disk access. This enhanced IDE feature works only under DOS, Windows 3.x, Windows 95/98, and Novell NetWare. If your software or hard disk does not support this function, set this parameter to **Disabled**.

CD-ROM Drive DMA Mode

This parameter allows you to enable or disable the CD-ROM drive DMA mode. Set this parameter to **Enabled** to enable the DMA mode for the CD-ROM drive. This improves the system performance since it allows direct memory access to the CD-ROM. To deactivate the function, set the parameter to **Disabled**.

3.5 Power Management

The Power Management menu lets you configure the system power management features.

The following screen shows the Power Management parameters with their default settings:

```
                        Power Management                Page 1/1

   Power Management Mode ..................... [Disabled]
      IDE Hard Disk Standby Timer ......... [---]
      System Sleep Timer .................. [---]
         Stop CPU Clock in Sleep State .... [---]
      Power Switch < 4 sec. ............... [Power Off]

   Wakeup Event
      Modem Ring ........................... [Disabled]

   ↑↓ = Move Highlight Bar,  → ← = Change Setting, F1 = Help
```

3.5.1 Power Management Mode

This parameter allows you to reduce power consumption. When this parameter is set to **Enabled**, you can configure the IDE hard disk and system timers. Setting to **Disabled** deactivates the power management feature and all the timers.

IDE Hard Disk Standby Timer

This parameter allows the hard disk to enter standby mode after inactivity of 1 to 15 minutes, depending on your setting. When you access the hard disk again, allow 3 to 5 seconds (depending on the hard disk) for the disk to return to normal speed. Set this parameter to **Off** if your hard disk does not support this function.

System Sleep Timer

This parameter sets the system to the lowest power-saving mode. It automatically enters into the sleep or the suspend mode after a specified period of inactivity. Any keyboard or mouse action, or any modem activity detected (if the Modem Ring option is enabled - see section 3.5.3) resumes system operation.

Stop CPU Clock in Sleep State

If you want to stop the CPU clock when the system enters the sleep or suspend mode, set this parameter to **Yes**. If not, select **No**.

3.5.2 Power Switch < 4 sec.

When set to **Power Off**, the system automatically turns off when the power switch is pressed for less than 4 seconds. When set to **Suspend**, the system enters the suspend mode when pressed for less than 4 seconds.

3.5.3 Wakeup Event

This parameter lets you specify the activity that will return the system to normal operating mode.

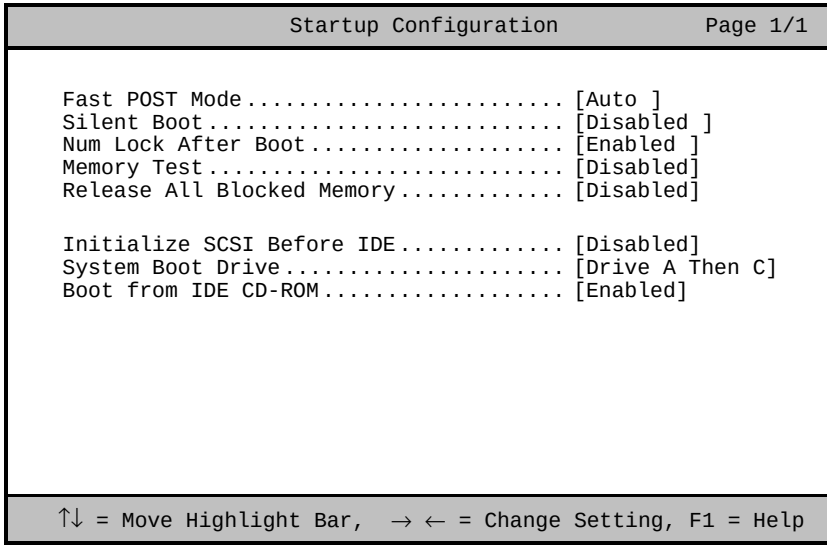
Modem Ring

Enable this item if you want to specify modem activity as your system wakeup event. This means that any modem activity detected will wake up the system.

3.6 Startup Configuration

The Startup Configuration allows you to specify your preferred setting for bootup.

The following screen appears if you select the Startup Configuration option from the main menu:


Startup Configuration Page 1/1
Fast POST Mode ..... [Auto]
Silent Boot ..... [Disabled]
Num Lock After Boot ..... [Enabled]
Memory Test ..... [Disabled]
Release All Blocked Memory ..... [Disabled]
Initialize SCSI Before IDE ..... [Disabled]
System Boot Drive ..... [Drive A Then C]
Boot from IDE CD-ROM ..... [Enabled]
↑↓ = Move Highlight Bar, → ← = Change Setting, F1 = Help

3.6.1 Fast POST Mode

This parameter allows the system to boot faster by skipping some POST routines. The default setting is **Auto**.

3.6.2 Silent Boot

This parameter enables or disables the Silent Boot function. When set to **Enabled**, BIOS is in graphical mode and displays only an identification logo during POST and while booting, after which the screen displays the operating system prompt (such as DOS) or logo (such as Windows 95). If any error occurs while booting, the system automatically switches to text mode.

Even if your setting is **Enabled**, you may also switch to text mode while booting by pressing F9 after you hear a beep that indicates activation of the keyboard.

When set to **Disabled,** BIOS is in conventional text mode where you see system initialization details on the screen.

3.6.3 Num Lock After Boot

This parameter allows you to activate the Num Lock function upon booting. The default setting is **Enabled**.

3.6.4 Memory Test

When set to **Enabled**, this parameter allows the system to perform a RAM test during the POST routine. When set to **Disabled,** the system detects only the memory size and bypasses the test routine. The default setting is **Disabled**.

3.6.5 Initialize SCSI Before IDE

Enabling this parameter allows SCSI devices installed in the system to be initialized before IDE devices. You may enable this parameter if you have a SCSI boot drive. When this parameter is disabled, the IDE drives are normally initialized first during POST. The default setting is **Enabled**.

3.6.6 System Boot Drive

This parameter allows you to specify the system search sequence. The selections are:

- **Drive A then C:** The system checks drive A first. If there is a diskette in the drive, the system boots from drive A. Otherwise, it boots from drive C:.
- **Drive C then A:** The system checks drive C first. If there is a hard disk (drive C) installed, the system boots from drive C. Otherwise, it boots from drive A.
- **C:** The system always boots from drive C.
- **A:** The system always boots from drive A.

3.6.7 Boot From IDE CD-ROM

When set to **Enabled**, the system checks for a bootable CD in the IDE CD-ROM drive. If a CD is present, the system boots from the CD-ROM; otherwise, it boots from the drive specified in the System Boot Drive parameter. When set to **Disabled,** the system boots from the drive specified in the System Boot Drive parameter. The default setting is **Enabled**.

3.7 Advanced Configuration

The Advanced Configuration option allows you to configure advanced system functions.

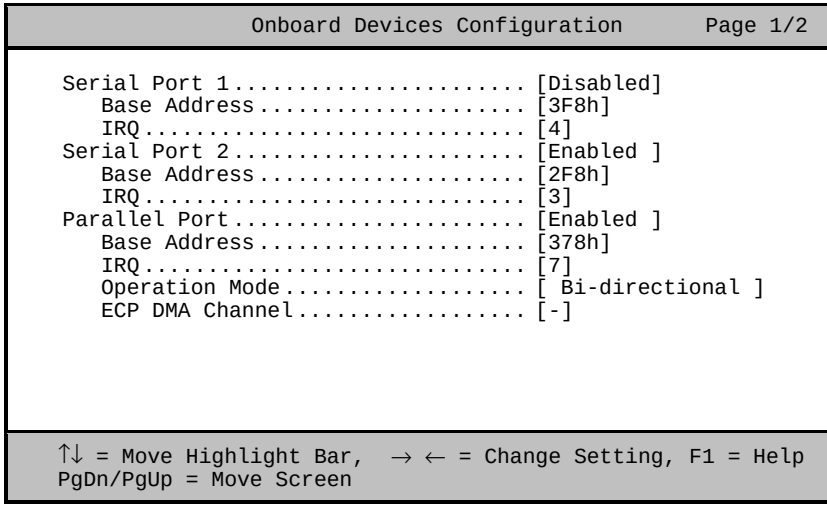
To avoid damaging the system, do not change any settings in the Advanced Configuration unless you are a qualified technician.

The following screen shows the Advanced Configuration parameters.

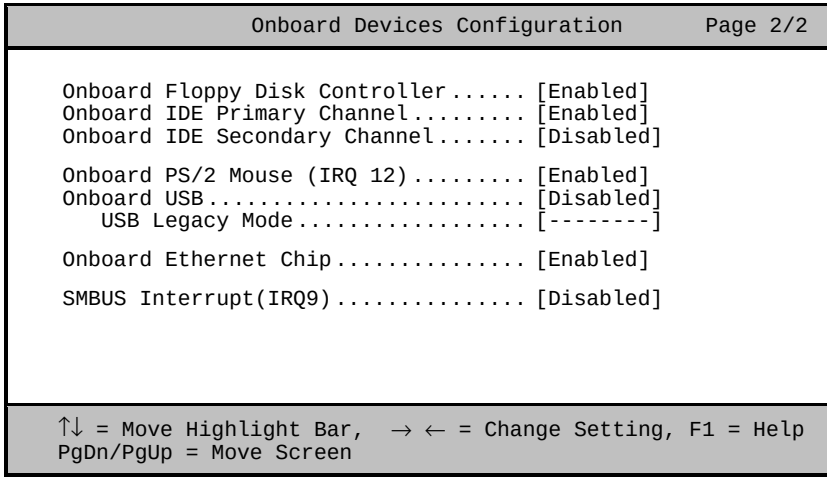
```
                    Advanced Configuration

          Onboard Devices Configuration
          PnP/PCI System Configuration
          Memory/Cache Configuration
            CPU Speed Configuration
          System Event Configuration

↑↓ = Move Highlight Bar,  → ← = Change Setting, F1 = Help
```

3.7.1 Onboard Devices Configuration

The Onboard Devices Configuration allows you to configure the onboard communication ports and the onboard devices. Selecting this option from the Advanced Configuration menu displays the following screen:


Onboard Devices Configuration Page 1/2
Serial Port 1 ..... [Disabled]
Base Address ..... [3F8h]
IRQ ..... [4]
Serial Port 2 ..... [Enabled]
Base Address ..... [2F8h]
IRQ ..... [3]
Parallel Port ..... [Enabled]
Base Address ..... [378h]
IRQ ..... [7]
Operation Mode ..... [Bi-directional]
ECP DMA Channel ..... [-]
↑↓ = Move Highlight Bar, → ← = Change Setting, F1 = Help
PgDn/PgUp = Move Screen

The following screen shows page 2 of the Onboard Devices Configuration menu:


Onboard Devices Configuration Page 2/2
Onboard Floppy Disk Controller..... [Enabled]
Onboard IDE Primary Channel..... [Enabled]
Onboard IDE Secondary Channel..... [Disabled]
Onboard PS/2 Mouse (IRQ 12)..... [Enabled]
Onboard USB..... [Disabled]
USB Legacy Mode..... [--------]
Onboard Ethernet Chip..... [Enabled]
SMBUS Interrupt(IRQ9)..... [Disabled]
↑↓ = Move Highlight Bar, → ← = Change Setting, F1 = Help
PgDn/PgUp = Move Screen

Serial Port 1

This parameter allows you to enable or disable the serial port 1. The Base Address and IRQ items are configurable only if this parameter is enabled. The default setting is **Enabled**.

Base Address

This function lets you set a logical base address for serial port 1. The options are:

- 3F8h
- 2F8h
- 3E8h
- 2E8h

The default setting is **3F8h**.

IRQ

This function lets you assign an interrupt for serial port 1. The options are IRQ 3 and 4. The default setting is **4**.

Serial Port 2

This parameter allows you to enable or disable the serial port 2. The Base Address and IRQ items are configurable only if this parameter is enabled. The default setting is **Enabled**.

Base Address

This function lets you set a logical base address for serial port 2. The options are:

- 3F8h
- 2F8h
- 3E8h
- 2E8h

The default setting is **2F8h**.

IRQ

This function lets you assign an interrupt for serial port 2. The options are IRQ 3 and 4. The default setting is **3**.

If you assign 3F8h to serial port 1, you may only assign 2F8h or 2E8h to serial port 2.

If you assign 2F8h to serial port 1, you may only assign 3F8h or 3E8h to serial port 2.

Parallel Port

This parameter allows you to enable or disable the parallel port.

Base Address

This function lets you set a logical base address for the parallel port. The options are:

- 3BCh
- 378h
- 278h

The default setting is **378h**.

IRQ

This function lets you assign an interrupt for the parallel port. The options are IRQ 5 and 7.

The Base Address and IRQ parameters are configurable only if Parallel Port is enabled.

If you install an add-on card that has a parallel port whose address conflicts with the parallel port onboard, the system automatically disables the onboard functions.

Check the parallel port address on the add-on card and change the address to one that does not conflict.

Operation Mode

This item allows you to set the operation mode of the parallel port. Table 3-1 lists the different operation modes. The default setting is **Bi-directional**.

Table 3-1 Parallel Port Operation Mode Settings

Setting	Function
Standard Parallel Port (SPP)	Allows normal speed one-way operation
Standard and Bidirectional	Allows normal speed operation in a two-way mode
Enhanced Parallel Port (EPP)	Allows bidirectional parallel port operation at maximum speed
Extended Capabilities Port (ECP)	Allows parallel port to operate in bidirectional mode and at a speed higher than the maximum data transfer rate

ECP DMA channel

This item becomes active only if you select **Extended Capabilities Port (ECP)** as the operation mode. It allows you to assign DMA channel 1 or DMA channel 3 for the ECP parallel port function.

Onboard Floppy Disk Controller

This parameter lets you enable or disable the onboard floppy disk controller. The default setting is **Enabled**.

Onboard IDE Primary Channel

This parameter lets you enable or disable the primary IDE channel. When enabled, it allows you access the devices connected to the primary channel. When disabled, it deactivates the connected devices. The default setting is **Enabled**.

Onboard IDE Secondary Channel

This parameter lets you enable or disable the secondary IDE channel. When enabled, it allows you access the devices connected to the secondary channel. When disabled, it deactivates the connected devices. The default setting is **Disabled**.

Onboard PS/2 Mouse (IRQ 12)

This parameter enables or disables the onboard PS/2 mouse. When enabled, it allows you to use the onboard PS/2 mouse assigned with IRQ12. When disabled, it deactivates the mouse and makes IRQ12 available for use of other devices. The default setting is **Enabled**.

Onboard USB

This parameter lets you enable or disable the USB controller on board. When enabled, it activates the USB function of the system. When disabled, it also deactivates the function. The default setting is **Disabled** .

USB Legacy Mode

This function, when enabled, lets you use a USB keyboard in a DOS environment. Set this to **Disabled** to deactivate the USB keyboard function in DOS.

Onboard Ethernet Chip

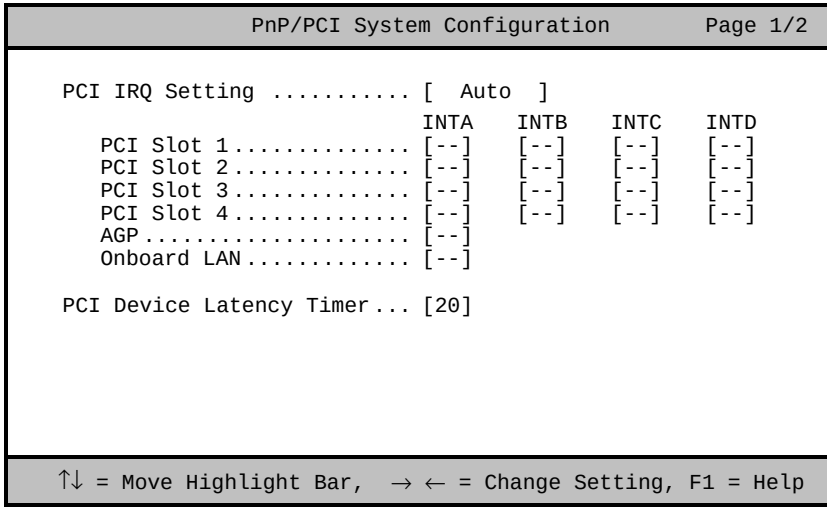
This parameter lets you enable or disable the LAN function on board. When enabled, it activates the LAN of the system. When disabled, it also deactivates the function. The default setting is **Enabled**.

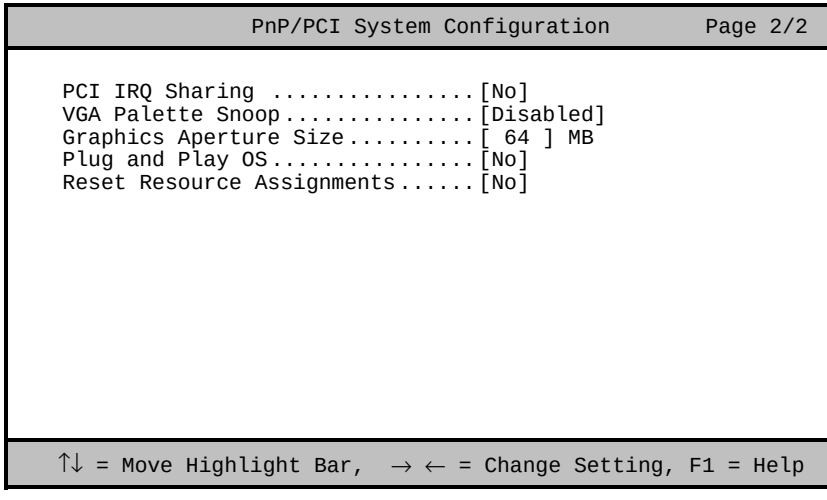
SMBUS Interrupt (IRQ9)

The System Management Bus (SMBus) is used to control and obtain information from devices on a motherboard. It was designed for hybrid devices based on analog semiconductor technologies and with limited digital capabilities. Enabling this feature will reserve IRQ9 for SMBUS use. The default setting is **Disabled** .

3.7.2 PnP/PCI System Configuration

The PnP / PCI System Configuration allows you to specify the settings for your PCI devices. Selecting this option displays the following screens:


PnP/PCI System Configuration Page 1/2
PCI IRQ Setting ..... [Auto]
INTA INTB INTC INTD
PCI Slot 1..... [--] [--] [--] [--]
PCI Slot 2..... [--] [--] [--] [--]
PCI Slot 3..... [--] [--] [--] [--]
PCI Slot 4..... [--] [--] [--] [--]
AGP..... [--]
Onboard LAN..... [--]
PCI Device Latency Timer... [20]
↑↓ = Move Highlight Bar, → ← = Change Setting, F1 = Help


PnP/PCI System Configuration Page 2/2
PCI IRQ Sharing .....[No]
VGA Palette Snoop.....[Disabled]
Graphics Aperture Size.....[64] MB
Plug and Play OS.....[No]
Reset Resource Assignments.....[No]
↑↓ = Move Highlight Bar, → ← = Change Setting, F1 = Help

PCI IRQ Setting

This parameter allows for **Auto** or **Manual** configuration of PCI devices. If you use plug-and-play (PnP) devices, set this parameter to **Auto**. The system then automatically assigns IRQs to PnP devices. If your PCI device is not a PnP, you can manually assign the interrupt for each device. Refer to your PCI card manual for more information. The default setting is **Auto**.

When the PCI IRQ Setting is set to Auto, all the IRQ setting fields become gray and non-configurable.

PCI Slots

These parameters allow you to specify the appropriate interrupt for each of the PCI devices. You can assign IRQ3, IRQ4, IRQ5, IRQ7, IRQ9, IRQ10, IRQ11, IRQ12, IRQ14, or IRQ15 to the slots.

Make sure that the interrupt you assign to the various PCI slots are not used by other devices to avoid conflicts.

Press ↑ or ↓ to move between fields. Press → or ← to select options.

AGP

This item shows the assigned interrupt for the onboard accelerated graphics port (AGP) controller.

Onboard LAN

This item allows you to manually assign the interrupt for the onboard LAN when the PCI IRQ Setting parameter is set to **Manual**. This parameter is grayed and not user-configurable when the PCI IRQ Setting is set to **Auto**.

PCI Device Latency Timer

This parameter allows you to set the length of time for a PCI device to use the PCI bus.

A PCI master can burst indefinitely as long as the target can source/sink the data, and no other agent requests for the bus. If another PCI device requests for the use of the PCI bus, a PCI bus arbitration takes place, and the tenure of the device currently using the PCI bus cannot go over the PCI latency time set in BIOS. This setting depends on your application.

For example, if you install a high bandwidth block I/O card, e.g., FDDI, the longer the latency time the better. This setting only affects the primary PCI components (PCI slots 1, 2, 3, 4, and onboard LAN). The secondary PCI components (PCI slots 4) are always set to 20 PCI clocks. The default setting is **20**.

PCI IRQ Sharing

Setting this parameter to **Yes** allows you to assign the same IRQ to two different devices. To disable the feature, select **No**. The default setting is **No**.

If there are no IRQs available to assign for the remaining device function, we recommend that you enable this parameter.

VGA Palette Snoop

This parameter permits you to use the palette snooping feature if you installed more than one VGA card in the system. The default setting is **Disabled**.

The VGA palette snoop function allows the control palette register (CPR) to manage and update the VGA RAM DAC (Digital Analog Converter, a color data storage) of each VGA card installed in the system. The snooping process lets the CPR send a signal to all the VGA cards so that they can update their individual RAM DACs. The signal goes through the cards continuously until all RAM DAC data has been updated. This allows display of multiple images on the screen.

Some VGA cards have required settings for this feature. Check your VGA card manual before setting this parameter.

Graphics Aperture Size

This parameter determines the effective size of the graphics aperture. Graphics aperture is the address range that the AGP video and the CPU use to manage graphical objects. The lowest setting is 8 MB and the highest is 256 MB. The default setting is **64** MB .

Plug and Play OS

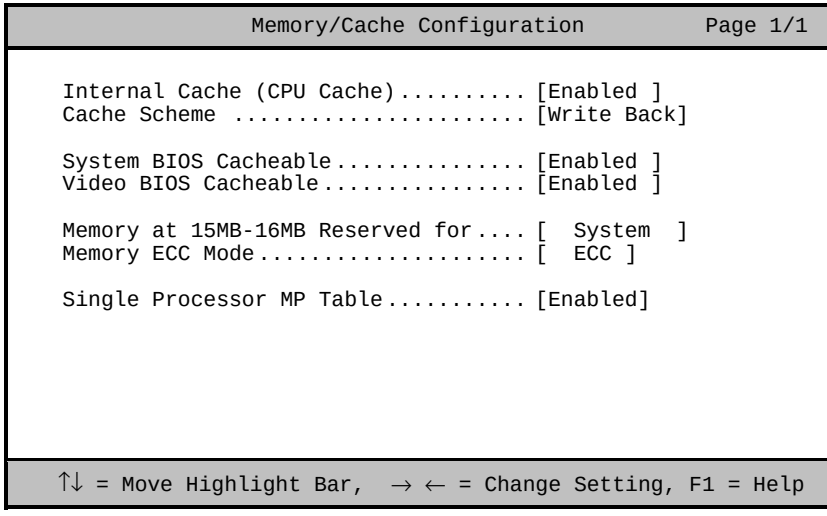
When this parameter is set to **Yes**, BIOS initializes only PnP boot devices such as SCSI cards. When set to **No**, BIOS initializes all PnP boot and non-boot devices such as sound cards. The default setting is **No**.

Reset Resource Assignments

Set this parameter to **Yes** to avoid IRQ conflict when installing non-PnP or PnP ISA cards. This clears all resource assignments and allows BIOS to reassign resources to all installed PnP devices the next time the system boots. After clearing the resource data, the parameter resets to **No**.

3.7.3 Memory/Cache Configuration

The Memory/Cache Configuration allows you to specify the appropriate settings for your system memory. Selecting the option displays the following screen:


Memory/Cache Configuration Page 1/1
Internal Cache (CPU Cache)..... [Enabled]
Cache Scheme ..... [Write Back]
System BIOS Cacheable..... [Enabled]
Video BIOS Cacheable..... [Enabled]
Memory at 15MB-16MB Reserved for.... [System]
Memory ECC Mode..... [ECC]
Single Processor MP Table..... [Enabled]
↑↓ = Move Highlight Bar, → ← = Change Setting, F1 = Help

Internal Cache (CPU Cache)

This parameter enables or disables the first-level or internal memory. The default setting is **Enabled**.

Cache Scheme

This parameter allows you to select **Write Back** or **Write Through** for the cache mode. **Write Back** updates the cache but not the memory when there is a write instruction. It updates the memory only when there is an inconsistency between the cache and the memory. **Write Through** updates both the cache and the memory whenever there is a write instruction. The default setting is **Write Back**.

System BIOS Cacheable

Set this parameter to **Enabled** if you want the system BIOS to run directly from the cache memory, thus allowing your system to function faster. Set this to **Disabled** to run the system BIOS from RAM. The default setting is **Enabled**.

Video BIOS Cacheable

Set this parameter to **Enabled** if you want the video BIOS to run directly from the cache memory, thus allowing your system to function faster. Set this to **Disabled** to run the video BIOS from RAM. The default setting is **Enabled**.

Memory at 15MB-16MB Reserved For

To prevent memory address conflicts between the system and expansion boards, reserve this memory range for the use of either the system or an expansion board.

Memory ECC Mode

This parameter allows you to select the DRAM operating mode. Setting to **ECC** turns on the error check and correct (ECC) function. ECC automatically corrects any single-bit errors detected. For multiple-bit errors detected, ECC only issues an NMI to signal the operating system of the multiple-bit error detection. Setting to **Disabled** deactivates the function. The default setting is **ECC**.

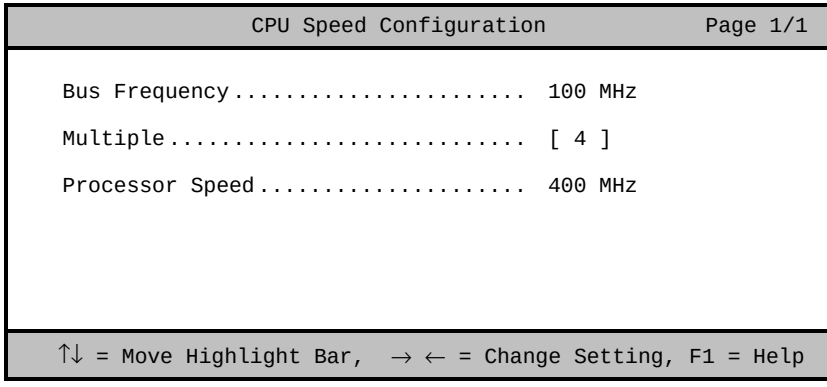
Single Processor MP Table

Enabling this parameter allows BIOS to create a multiprocessor (MP) table for Windows NT use. In a single-processor system running Windows NT, you may disable this parameter to enhance system performance.

In cases when this parameter is enabled before installing Windows NT in a single-processor system, you may upgrade to a multiprocessor system without reinstalling Windows NT. The default setting is **Enabled**.

3.7.4 CPU Speed Configuration

The CPU Speed Configuration allows you to specify the appropriate settings for your system memory. Selecting the option displays the following screen:


CPU Speed Configuration
Page 1/1
Bus Frequency..... 100 MHz
Multiple..... [4]
Processor Speed..... 400 MHz
↑↓ = Move Highlight Bar, → ← = Change Setting, F1 = Help

Bus Frequency

The bus frequency refers to the speed by which data is transfer between internal computer components and the CPU or the main memory of the CPU. A fast bus allows data to be transferred faster, which makes applications run faster.

Multiple

Sets this parameter for the Core/BUS ratio of your system. The clock speed of the BUS does not necessarily equal the CPU's (core). The bus clock speed is often slower than the CPU clock speed.

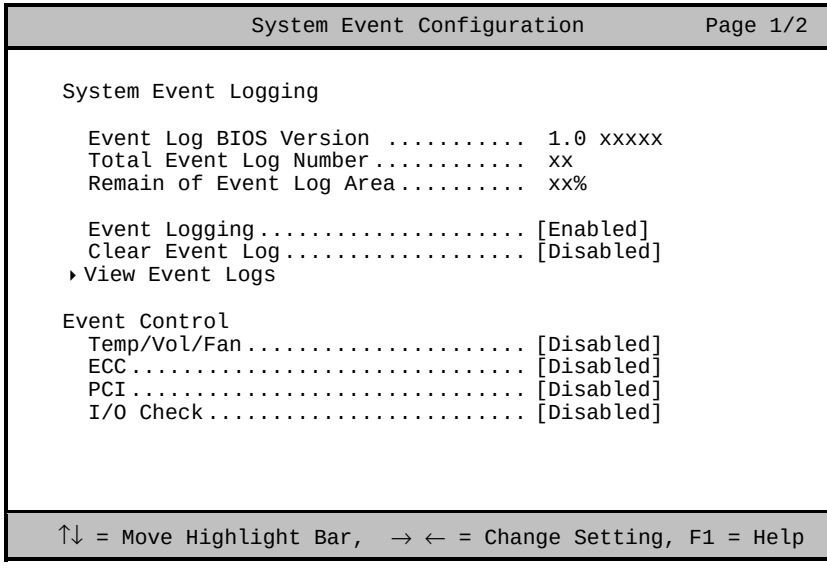
Processor Speed

The processor speed is the speed at which a microprocessor executes instructions. Clock speeds are expressed in megahertz (MHz), with 1 MHz being equal to 1 million cycles per second. The faster the clock, the more instructions the CPU can execute per second.

3.7.5 System Event Configuration

The system event configuration enables you to record and monitor events that occurs in your system like system temperature, fan stops, and others. This feature allows you to specify the appropriate settings for your system's event handling.

Selecting the option displays the following screen:


System Event Configuration Page 1/2
System Event Logging
Event Log BIOS Version ..... 1.0 xxxxx
Total Event Log Number xx
Remain of Event Log Area ..... xx%
Event Logging ..... [Enabled]
Clear Event Log ..... [Disabled]
View Event Logs
Event Control
Temp/Vol/Fan ..... [Disabled]
ECC ..... [Disabled]
PCI ..... [Disabled]
I/O Check ..... [Disabled]
↑↓ = Move Highlight Bar, → ← = Change Setting, F1 = Help

System Event Logging

Allows you to record monitored events that occur during the operation of your system.

Event Logging

This parameter allows you to enable or disable the event logging function of your system. The default setting is **Enabled**.

Clear Event Log

Clears the event log whenever the event log area is full. The default setting is **Disabled**.

View Event Logs

Opens the system event log file for viewing.

Event Control

This parameter monitors the following events and logs them into the event log file if there is a change in status.

Temp/Vol/Fan

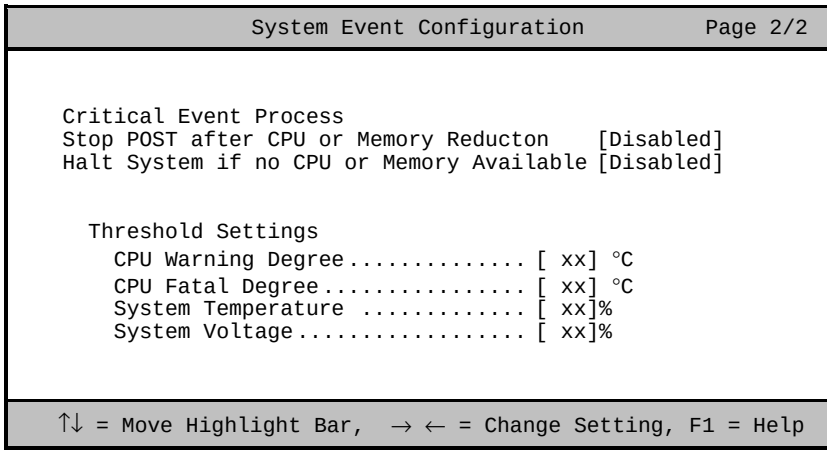
Enable or disable the monitoring of the system's temperature, volume, and CPU fan. The default setting is **Disabled**.

ECC

ECC or Error-Correcting Code tests the accuracy of data as it passes in and out of memory. This parameter enables or disables the monitoring of this function. The default setting is **Disabled**.

PCI

PCI or Peripheral Component Interconnect is a 32-bit bus that supports a 64-bit extension for new processors, such as the Pentium. It can run at clock speeds of 33 or 66 MHz. This parameter monitors the activity of this bus when set to enabled. The default setting is **Disabled**.


System Event Configuration Page 2/2
Critical Event Process
Stop POST after CPU or Memory Reducton [Disabled]
Halt System if no CPU or Memory Available [Disabled]
Threshold Settings
CPU Warning Degree..... [xx] °C
CPU Fatal Degree..... [xx] °C
System Temperature ..... [xx]%
System Voltage..... [xx]%
↑↓ = Move Highlight Bar, → ← = Change Setting, F1 = Help

Threshold Settings

There are two threshold levels for this parameter. One is for a warning degree and the other is for a fatal degree. Whenever an event exceeds the threshold setting, the system will log the event in the event log area.

CPU Warning Degree

You can set a threshold for the CPU's temperature level here and every time the CPU's temperature exceeds this level a warning will be logged into the event log file. A typical warning degree threshold setting is 55°C.

CPU Fatal Degree

When the CPU's temperature reaches this threshold level a fatal warning will be logged into the event log file. A typical fatal degree threshold setting is 75°C.

System Temperature

Monitors the temperature of the system.

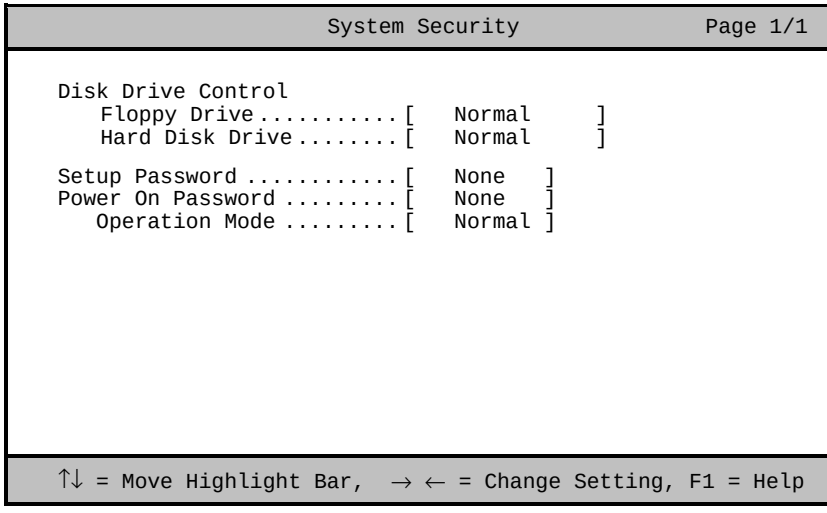
System Voltage

Monitors the system's voltage.

3.8 System Security Setup

The Setup program has a number of security features to prevent unauthorized access to the system and its data.

The following screen appears when you select System Security from the main menu:


System Security
Page 1/1
Disk Drive Control
Floppy Drive ..... [Normal]
Hard Disk Drive ..... [Normal]
Setup Password ..... [None]
Power On Password ..... [None]
Operation Mode ..... [Normal]
↑↓ = Move Highlight Bar, → ← = Change Setting, F1 = Help

3.8.1 Disk Drive Control

The disk drive control features allow you to control the floppy drive or the hard disk drive boot function to prevent loading operating systems or other programs from a certain drive while the other drives are operational.

Table 3-2 lists the drive control settings and their corresponding functions.

Table 3-2 Drive Control Settings

Setting	Description
Floppy Drive	
Normal	Floppy drive functions normally
Write Protect All Sectors	Disables the write function on all sectors
Write Protect Boot Sector	Disables the write function only on the boot sector
Disabled	Disables all floppy drive functions
Hard Disk Drive	
Normal	Hard disk drive functions normally
Write Protect All Sectors	Disables the write function on all sectors
Write Protect Boot Sector	Disables the write function only on the boot sector
Disabled	Disables all hard disk functions

3.8.2 Setup Password

The Setup Password prevents unauthorized access to the BIOS utility.

Setting a Password

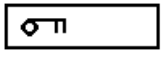
1. Make sure that JP7 is set to **2-3** (bypass password).

You cannot enter the BIOS utility if a Setup password does not exist and JP7 is set to 1-2 (password check enabled).

By default, JP7 is set to 2-3 (bypass password).

2. Enter BIOS utility and select System Security.

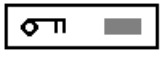
3. Highlight the Setup Password parameter and press the ← or → key. The password prompt appears:

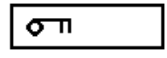


4. Type a password. The password may consist of up to seven characters.

Be very careful when typing your password because the characters do not appear on the screen.

5. Press ENTER. A prompt asks you to retype the password to verify your first entry.





6. Retype the password then press ENTER.

   After setting the password, the system automatically sets the Setup Password parameter to **Present**.

7. Press ESC to exit the System Security screen and return to the main menu.

8. Press ESC to exit the BIOS utility. A dialog box appears asking if you want to save the CMOS data.

9. Select **Yes** to save the changes and reboot the system.

10. While rebooting, turn off the system then open the housing.

11. Set JP7 to **1-2** to enable the password function.

The next time you want to enter the BIOS utility, you must key-in your Setup password.

Changing or Removing the Setup Password

Should you want to change your setup password, do the following:

1. Enter the BIOS utility and select System Security.

2. Highlight the Setup Password parameter.

3. Press ← or → to display the password prompt and key-in a new password.

   or

   Press ← or → and select **None** to remove the existing password.

4. Press ESC to exit the System Security screen and return to the main menu.

5. Press ESC to exit the BIOS utility. A dialog box appears asking if you want to save the CMOS data.

6. Select **Yes** to save the changes.

Bypassing the Setup Password

If you forget your setup password, you can bypass the password security feature by hardware. Follow these steps to bypass the password:

1. Turn off and unplug the system.

2. Open the system housing and set JP7 to **2-3** to bypass the password function.

3. Turn on the system and enter the BIOS utility. This time, the system does not require you to type in a password.

You can either change the existing Setup password or remove it by selecting None. Refer to the previous section for the procedure.

3.8.3 Power-on Password

The Power-on Password secures your system against unauthorized use. Once you set this password, you have to type it whenever you boot the system. To set this password, enter the BIOS utility, select System Security, then highlight the Power-on Password parameter. Follow the same procedure as in setting the Setup password.

Make sure to set JP7 to pins 1-2 to enable the Power-on Password.

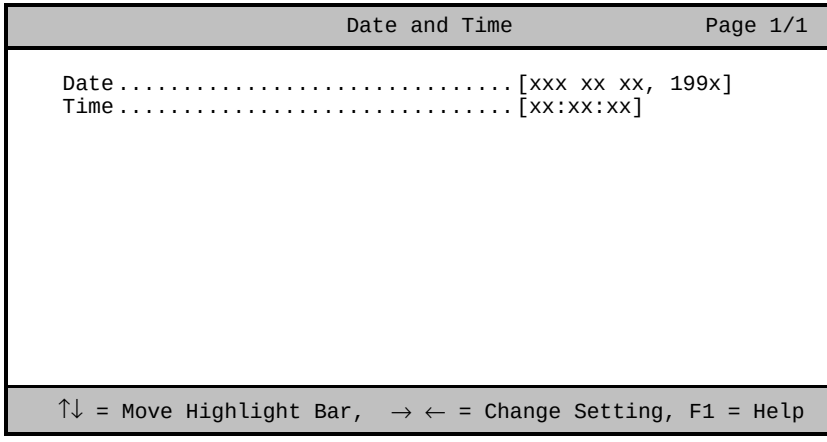
Operation Mode

This function lets you enable or disable the password prompt display. When set to **Normal**, the password prompt appears before system boot. When set to **Keyboard Lock**, the password prompt does not appear; however, your system will not respond to any keyboard or mouse input until you enter the correct password.

3.9 Date and Time

The real-time clock keeps the system date and time. After setting the date and time, you do not need to enter them every time you turn on the system. As long as the internal battery remains good (approximately seven years) and connected, the clock continues to keep the date and time accurately even when the power is off.

The following screen appears if you select Date and Time from the main menu.



3.9.1 Date

Highlight the items on the Date parameter and press → or ← to set the date following the weekday-month-day-year format.

Valid values for weekday, month, day, and year are:

- Weekday Sun, Mon, Tue, Wed, Thu, Fri, Sat
- Month 1 to 12
- Day 1 to 31
- Year 00 to 99

3.9.2 Time

Highlight the items on the Time parameter and press → or ← to set the time following the hour-minute-second format.

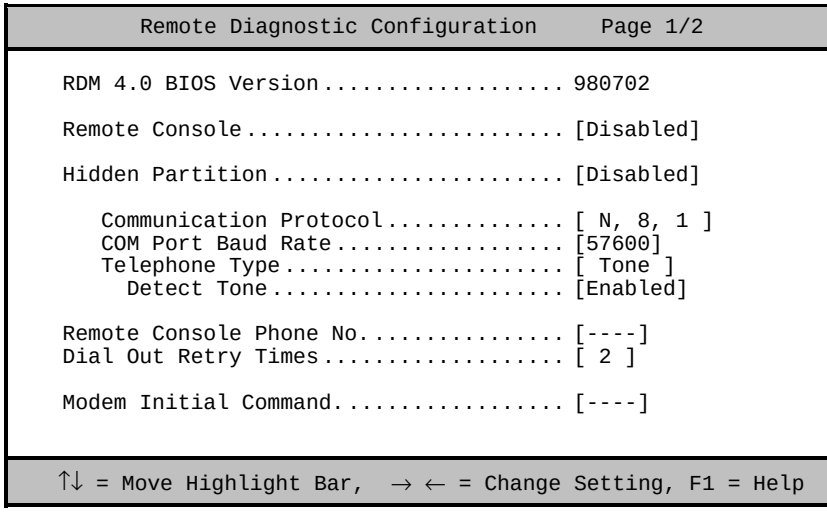
Valid values for hour, minute, and second are:

- Hour 00 to 23
- Minute 00 to 59
- Second 00 to 59

3.10 Remote Diagnostic Configuration

Please refer to the *Remote Diagnostic Manager (RDM) User's Guide* for more information on remote diagnostic configuration.

The following is the first of two Remote Diagnostic Configuration screens in the BIOS utility. It shows the remote diagnostic parameters with their default settings:


Remote Diagnostic Configuration Page 1/2
RDM 4.0 BIOS Version 980702
Remote Console ..... [Disabled]
Hidden Partition ..... [Disabled]
Communication Protocol ..... [N, 8, 1]
COM Port Baud Rate ..... [57600]
Telephone Type ..... [Tone]
Detect Tone ..... [Enabled]
Remote Console Phone No. ..... [----]
Dial Out Retry Times ..... [2]
Modem Initial Command. ..... [----]
↑↓ = Move Highlight Bar, → ← = Change Setting, F1 = Help

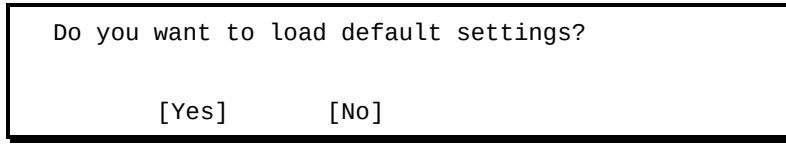
The following is the second of two Remote Diagnostic Configuration screens in the BIOS utility. It shows the remote diagnostic parameters with their default settings:

```
        Remote Diagnostic Configuration Page 2/2

RDM Daughter Board Version ..... R01-A6
RDM Work Mode ..... [Reboot]
Waiting Mode Password ..... [---]

System Critical Paging No. ..... [---]
   1 ..... [---]
   2 ..... [---]
   3 ..... [---]
Paging Times ..... [ 1 ]

RDM Host Name ..... [---]
Location ..... [---]
Administrator ..... [---]
Phone Number ..... [---]
Email Address ..... [---]

↑↓ = Move Highlight Bar,  → ← = Change Setting, F1 = Help
```

3.11 Load Setup Default Settings

Use this option to load the default settings for the optimized system configuration. When you load the default settings, some of the parameters are grayed-out with their fixed settings. These grayed parameters are not user-configurable.

The following dialog box appears when you select Load Setup Default Settings from the main menu.



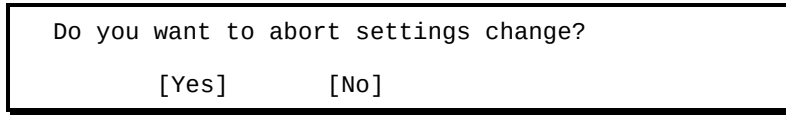
Select **Yes** to load the default settings.

Select **No** to ignore the message and return to the BIOS utility.

3.12 Abort Settings Change

Use this option to disregard your changes to the BIOS and reload your previous settings.

The following dialog box appears when you select Abort Settings Change from the main menu.



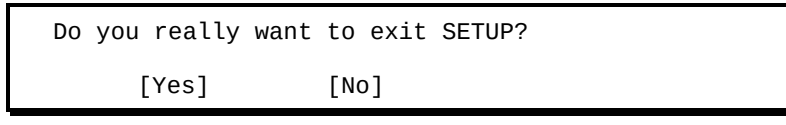
Select **Yes** to disregard your changes and reload your previous settings. After reload, the main menu appears on screen.

Select **No** to ignore the message and return to the BIOS utility.

3.13 Leaving Setup

Examine the system configuration values. When you are satisfied that all the values are correct, write them down. Store the recorded values in a safe place. In the future, if the battery loses power or the CMOS chip is damaged, you will know what values to enter when you rerun Setup.

Press ESC to leave the system configuration setup. The following screen appears:



Use the arrow keys to select your response. Select **Yes** to store the new data in CMOS. Select **No** to retain the old configuration values. Press ENTER .

Chapter 4 SCSI*Select* Configuration Utility

4.1 SCSI*Select* Configuration Utility Overview

The SCSI*Select* configuration utility allows you to change SCSI controller settings without opening the computer or changing jumpers.

4.1.1 Default Values

The following table lists the settings you can change with the SCSI*Select* utility and the default value for each setting. Some settings apply globally to the SCSI controller and all SCSI devices on the bus; other settings apply individually to each device on the bus.

The Altos 1100E Series system is equipped with a dual SCSI channel controller that enhances your system's performance and flexibility.

Table 4-1 Default Settings for SCSI Controller and All Devices

Global Settings for SCSI Controller and All Devices	**Default Value**
Host Adapter SCSI ID	7
SCSI Parity Checking	Enabled
Host Adapter SCSI Termination	Automatic
Boot Channel/ Boot SCSI I/O	A/0 (zero)
Host Adapter BIOS[1]	Enabled
Support Removable Disks Under BIOS as Fixed Disks	Boot only
Extended BIOS Translation for DOS Drives > 1 Gbyte	Enabled[2]
Display <Ctrl-A> Message During BIOS Initialization	Enabled
BIOS Support for Bootable CD-ROM	Enabled
BIOS Support for Int13 Extensions	Enabled
Individual Settings for Each SCSI Device	**Default Value**
Initiate Wide Negotiation	Yes
Maximum Sync Transfer Rate	80 MBytes/sec.
Enable Disconnection	Yes
Send Start Unit Command[1]	Yes
Initiate Wide Negotiation	Yes

[1] Settings are valid only if host adapter BIOS is enabled.

[2] Do not change this setting from the default.

4.1.2 When to Use the SCSI*Select* Utility

Use the SCSI*Select* utility if you need to

- Change any of the default values listed in the settings table
- Check and / or change SCSI device settings that may conflict with those of other devices (e.g., SCSI ID)
- Perform low-level formatting on new SCSI disk devices

4.1.3 Running the SCSI*Select* Utility

To start SCSI*Select*, press **Ctrl+A** when the following is displayed during power-up or reset:

```
Press <Ctrl> <A> for SCSISelect™ Utility!
```

This message appears after BIOS and POST information displays, and after the banner listing the Adaptec AHA-3950U2B version number.

4.2 SCSI*Select* Utility Options

When the SCSI*Select* utility detects the AHA-3950U2B SCSI controller in your computer, it displays the Options menu shown below.

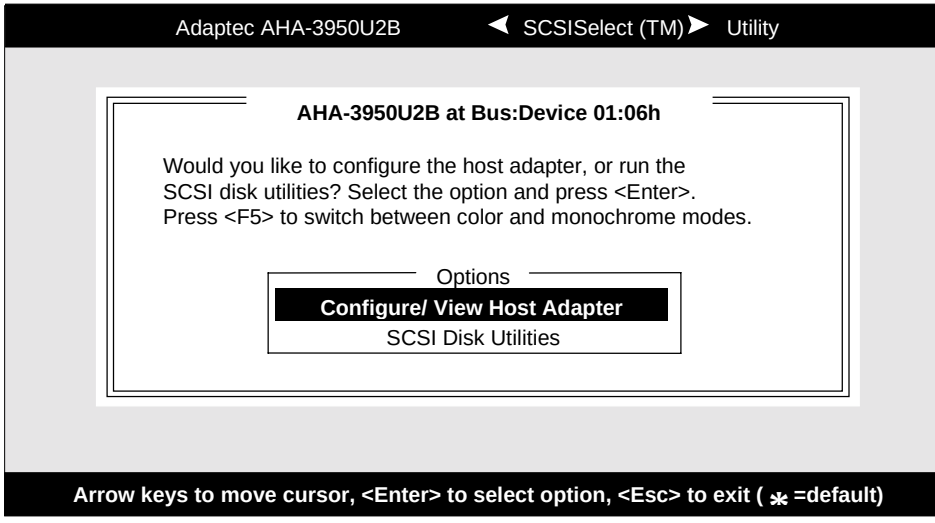

Adaptec AHA-3950U2B
SCSISelect (TM)
Utility
AHA-3950U2B at Bus:Device 01:06h
Would you like to configure the host adapter, or run the
SCSI disk utilities? Select the option and press <Enter>.
Press <F5> to switch between color and monochrome modes.
Options
Configure/ View Host Adapter
SCSI Disk Utilities
Arrow keys to move cursor, <Enter> to select option, <Esc> to exit (* =default)

Figure 4-1 Options Menu Screen

Use the ↑ and ↓ keys and the **Enter** key to make selections in the SCSI*Select* utility. Press **Esc** at any time to return to the previous menu.

*You can press **F5** to toggle the display between color and monochrome modes. (This feature may not work on all monitors.)*

4.2.1 Configure/View Host Adapter Settings Menu

The Configure/View Host Adapter Settings menu lists three settings under SCSI Bus Interface Definitions and three additional options, as shown below:

- **Host Adapter SCSI ID:** changes the host controller SCSI ID from its default value of 7
- **SCSI Parity Checking:** enables or disables host controller SCSI parity checking
- **Host Adapter SCSI Termination:** configures host controller SCSI termination

Advanced users can access Boot Device Options, SCSI Device Configuration, and Advanced Configuration Options through the following menu:

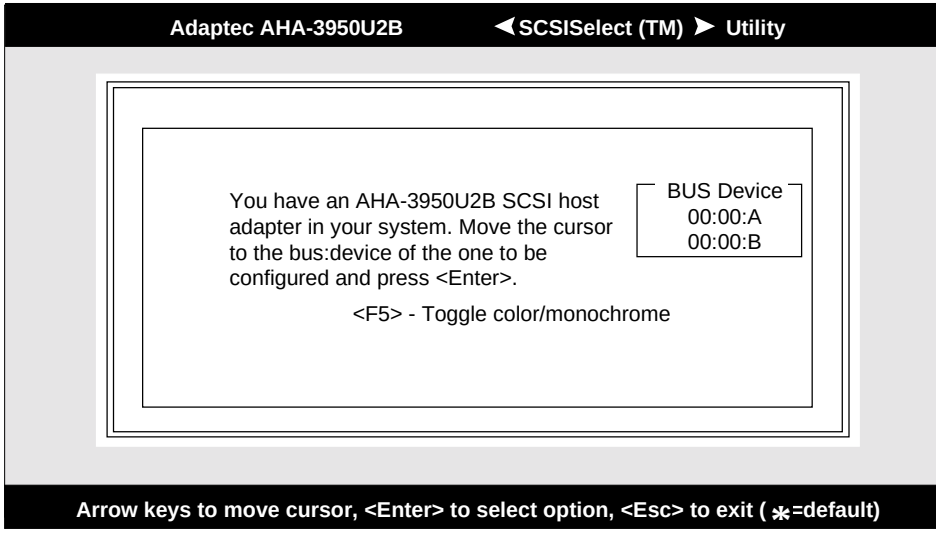

Adaptec AHA-3950U2B
◄SCSISelect (TM) ► Utility
You have an AHA-3950U2B SCSI host adapter in your system. Move the cursor to the bus:device of the one to be configured and press <Enter>.
BUS Device
00:00:A
00:00:B
<F5> - Toggle color/monochrome
Arrow keys to move cursor, <Enter> to select option, <Esc> to exit (*=default)

Figure 4-2 Configure/View Host Adapter Settings Screen (1 of 2)

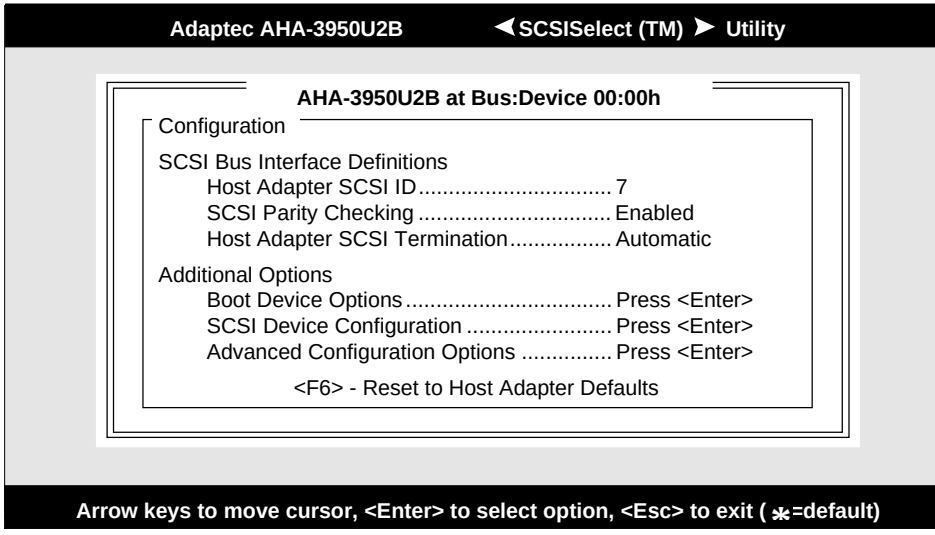

Adaptec AHA-3950U2B
SCSISelect (TM)
Utility
AHA-3950U2B at Bus:Device 00:00h
Configuration
SCSI Bus Interface Definitions
Host Adapter SCSI ID 7
SCSI Parity Checking ..... Enabled
Host Adapter SCSI Termination ..... Automatic
Additional Options
Boot Device Options ..... Press <Enter>
SCSI Device Configuration ..... Press <Enter>
Advanced Configuration Options ..... Press <Enter>
<F6> - Reset to Host Adapter Defaults
Arrow keys to move cursor, <Enter> to select option, <Esc> to exit (*=default)

Figure 4-3 Configure/View Host Adapter Settings Screen (2 of 2)

Use the cursor (↑ ↓) to move to your selection. Press **Enter** to display a pop-up menu of choices or to make selections. Press **Esc** at any time to return to the previous menu.

*Press **F6** to reset all settings to the SCSI controller defaults. SCSI controller default settings are marked with an asterisk (*) throughout the selection submenus.*

Host Adapter SCSI ID

This option allows you to change the host controller SCSI ID. The figure below shows the available IDs for use with the AHA-3950U2B. The default setting is SCSI ID 7. (We recommend that you not change this setting.) Some operating system software will not run unless the SCSI controller ID is set at ID 7.

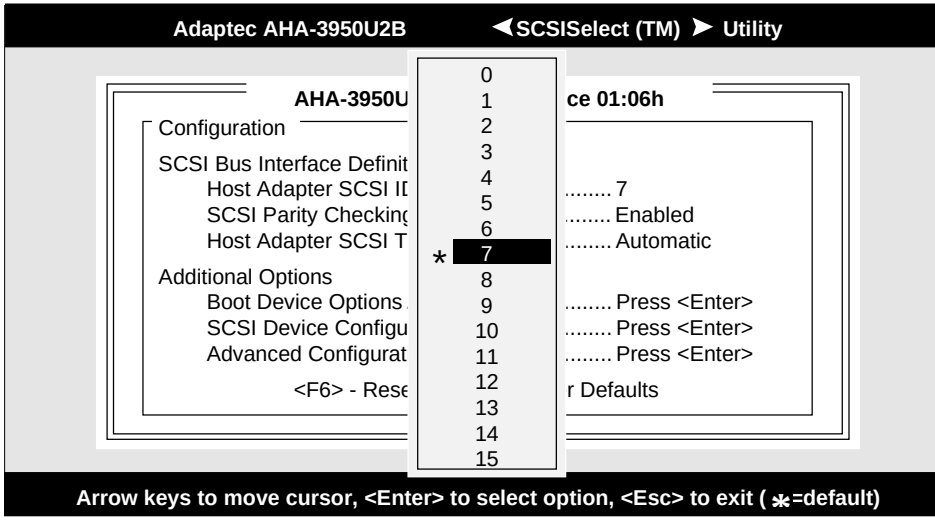


Figure 4-4 Host Adapter SCSI ID Selection Screen for AHA-3950U2B

Each SCSI device on the SCSI bus, including the SCSI controller, must be set to a unique SCSI ID. The SCSI ID serves two purposes: it uniquely identifies each SCSI device on the bus, and it determines the device's priority on the bus during the Arbitration phase. The Arbitration phase determines which device controls the bus when two or more devices request use of it.

Use the cursor (↑ ↓) and **Enter** keys to select the SCSI ID, if you need to change it. Press **Esc** at any time to return to the previous menu.

SCSI Parity Checking

Select this option to enable or disable SCSI Parity Checking on the SCSI controller. The figure below displays your choices. The default setting is **Enabled**.

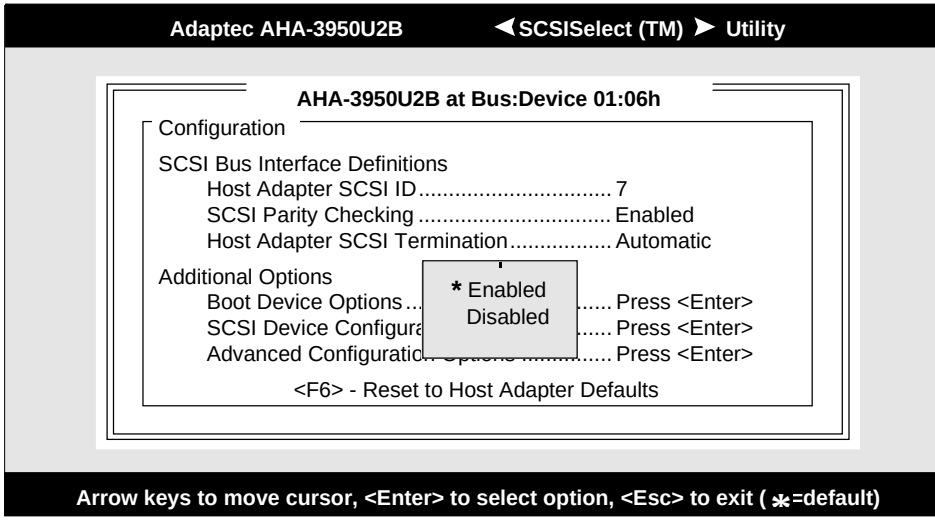

Adaptec AHA-3950U2B
SCSISelect (TM)
Utility
AHA-3950U2B at Bus:Device 01:06h
Configuration
SCSI Bus Interface Definitions
Host Adapter SCSI ID 7
SCSI Parity Checking ..... Enabled
Host Adapter SCSI Termination ..... Automatic
Additional Options
Boot Device Options ..... Press <Enter>
SCSI Device Configura ..... Press <Enter>
Advanced Configuratio ..... Press <Enter>
* Enabled
Disabled
<F6> - Reset to Host Adapter Defaults
Arrow keys to move cursor, <Enter> to select option, <Esc> to exit (*=default)

Figure 4-5 SCSI Parity Checking Selection

The SCSI controller always checks parity when reading from the SCSI bus to verify the correct transmission of data from your SCSI devices. You should disable SCSI Parity Checking if any attached SCSI devices do not support SCSI parity. (Most currently available SCSI devices do support SCSI parity.)

Use the cursor (↑ ↓) and **Enter** keys to make selections. Press **Esc** at any time to return to the previous menu.

Host Adapter SCSI Termination

This option allows you to configure host controller SCSI termination. The following figure shows the choices available if you have an AHA-3950U2B.

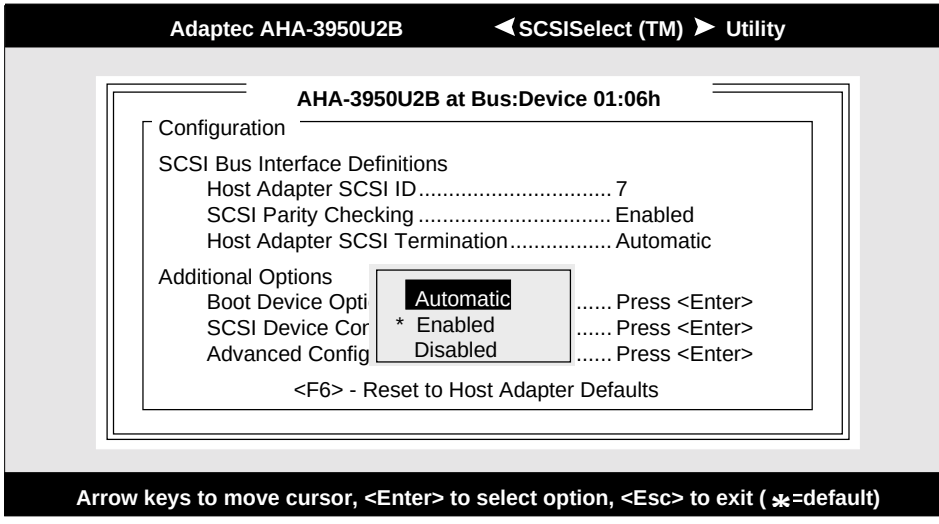


Figure 4-6 Host Adapter SCSI Termination Selection for AHA-3950U2B

Use the cursor (↑ ↓) and **Enter** keys to make your selection.

Boot Device Options

This option shows the target ID of the device you are booting from. The default setting is **0** (zero). We recommend that you not change this setting. Some operating systems will not run unless the boot device is set at zero.

The figure below shows the Boot Device Options screen.

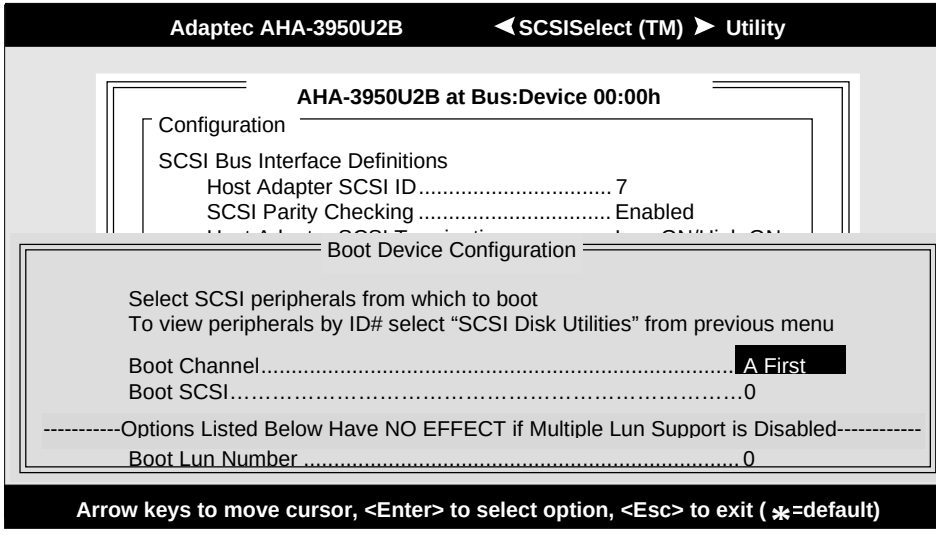

Adaptec AHA-3950U2B
SCSISelect (TM)
Utility
AHA-3950U2B at Bus:Device 00:00h
Configuration
SCSI Bus Interface Definitions
Host Adapter SCSI ID 7
SCSI Parity Checking ..... Enabled
Boot Device Configuration
Select SCSI peripherals from which to boot
To view peripherals by ID# select "SCSI Disk Utilities" from previous menu
Boot Channel ..... A First
Boot SCSI 0
----------Options Listed Below Have NO EFFECT if Multiple Lun Support is Disabled----------
Boot Lun Number 0
Arrow keys to move cursor, <Enter> to select option, <Esc> to exit (*=default)

Figure 4-7 Boot Device Options Screen

SCSI Device Configuration

This option allows you to configure certain parameters of each SCSI device on the SCSI bus. A screen similar to the figure below appears. The screen shows a column of information for each SCSI ID, even if some SCSI IDs are not assigned to a device. To configure a specific SCSI device, you need to know which SCSI ID it uses. See *SCSI Disk Utilities* later in this section to learn how to determine which SCSI ID is used by which device.

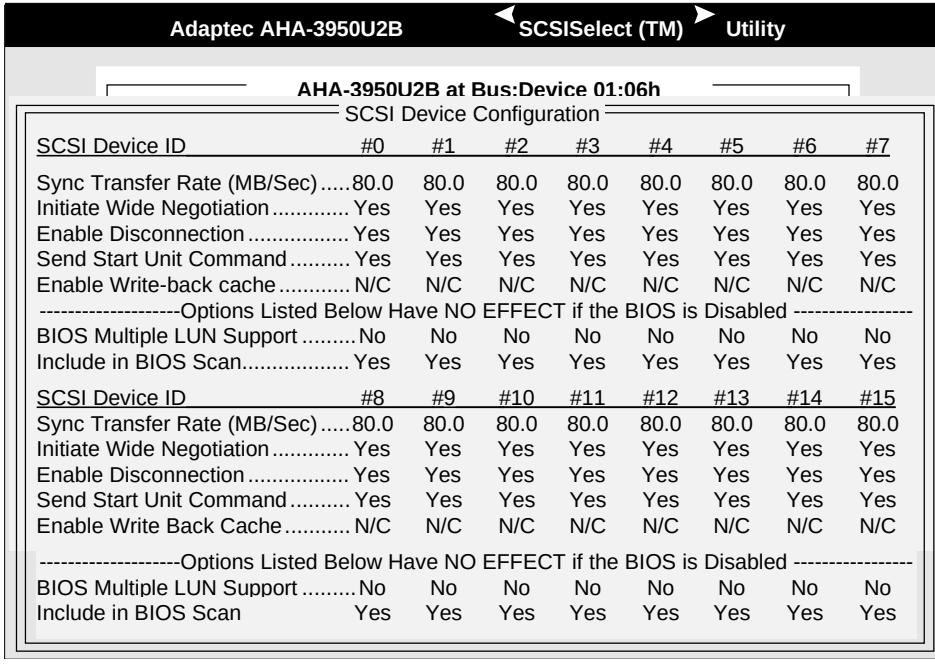

Adaptec AHA-3950U2B
SCSISelect (TM)
Utility
AHA-3950U2B at Bus:Device 01:06h
SCSI Device Configuration
SCSI Device ID #0 #1 #2 #3 #4 #5 #6 #7
Sync Transfer Rate (MB/Sec) 80.0 80.0 80.0 80.0 80.0 80.0 80.0 80.0
Initiate Wide Negotiation Yes Yes Yes Yes Yes Yes Yes Yes
Enable Disconnection Yes Yes Yes Yes Yes Yes Yes Yes
Send Start Unit Command Yes Yes Yes Yes Yes Yes Yes Yes
Enable Write-back cache N/C N/C N/C N/C N/C N/C N/C N/C
----------Options Listed Below Have NO EFFECT if the BIOS is Disabled ----------
BIOS Multiple LUN Support No No No No No No No No
Include in BIOS Scan Yes Yes Yes Yes Yes Yes Yes Yes
SCSI Device ID #8 #9 #10 #11 #12 #13 #14 #15
Sync Transfer Rate (MB/Sec) 80.0 80.0 80.0 80.0 80.0 80.0 80.0 80.0
Initiate Wide Negotiation Yes Yes Yes Yes Yes Yes Yes Yes
Enable Disconnection Yes Yes Yes Yes Yes Yes Yes Yes
Send Start Unit Command Yes Yes Yes Yes Yes Yes Yes Yes
Enable Write Back Cache N/C N/C N/C N/C N/C N/C N/C N/C
----------Options Listed Below Have NO EFFECT if the BIOS is Disabled ----------
BIOS Multiple LUN Support No No No No No No No No
Include in BIOS Scan Yes Yes Yes Yes Yes Yes Yes Yes

Figure 4-8 SCSI Device Configuration Screen for AHA-3950U2B

Use the cursor keys (↑ ↓) to move between options. Press **Enter** to display a pop-up menu with a selection of values. Use the cursor keys (↑ ↓) to select a value, and press **Enter** to make your selection.

Initiate Sync Negotiation

This option determines whether the SCSI controller initiates synchronous negotiation with the SCSI device.

When set to **yes**, the SCSI controller initiates synchronous negotiation with the SCSI device. When set to **no**, the SCSI controller does not initiate synchronous negotiation. The SCSI controller, however, always *responds* to synchronous negotiation if the SCSI device initiates it. The default setting is **yes**.

Data is transferred in asynchronous mode if neither the SCSI controller nor the SCSI peripheral negotiates for synchronous data transfers.

*Some older SCSI-1 devices do not support synchronous negotiation. This may cause your computer to operate erratically or hang if Initiate Sync Negotiation is enabled. Set Initiate Sync Negotiation to **no** for these devices.*

Maximum Sync Transfer Rate

This option determines the maximum synchronous data transfer rate that the SCSI controller can support. The SCSI controller supports rates up to the UltraWide SCSI maximum of 80.0 MBytes/sec. The default value is **80.0**.

In most cases, you can use the maximum value of 80.0. If the SCSI controller is set *not* to negotiate for synchronous data transfer (i.e., Initiate Sync Negotiation is set to **no**), then the value selected here is the maximum rate that the SCSI controller accepts from the device during negotiation. (This is standard SCSI protocol.)

*Some older SCSI-1 devices do not support Fast SCSI data transfer rates. This may cause your computer to operate erratically or hang if the transfer rate is set too high. Set Initiate Sync Negotiation to **no** for these devices.*

Enable Disconnection

This option determines whether the SCSI controller allows a SCSI device to disconnect from the SCSI bus (sometimes called Disconnect/Reconnect). Disconnect/Reconnect allows the SCSI controller to perform other operations on the SCSI bus while the SCSI device is temporarily disconnected.

When set to **yes**, the SCSI device may disconnect from the SCSI bus. The SCSI device, however, may choose not to disconnect, even if permitted by the SCSI controller (this can usually be configured on the SCSI device). When set to **no**, the SCSI device is not allowed to disconnect from the SCSI bus. The default setting is **yes**.

You should leave Enable Disconnection set to **yes** if two or more SCSI devices are connected to the SCSI controller. This optimizes SCSI bus performance. If only one SCSI device is connected to the SCSI controller, set Enable Disconnection to **no** to achieve slightly better performance.

Initiate Wide Negotiation

This option allows communication between all devices (lower 8-bit or upper 8-bit) on the wide (16-bit) SCSI bus. When set to **yes**, each device can connect on the bus. When set to **no** (disabled), communication can only occur on the lower 8-bits of the 16-bit SCSI bus. The default setting is **yes**.

Send Start Unit Command

This option, which is supported by some SCSI devices, determines whether the Start Unit Command (SCSI command 1B) is sent to the SCSI device (most devices do not require this). Enabling this option reduces the load on your computer's power supply by allowing the SCSI controller to power-up SCSI devices one-at-a-time when you boot your computer. Otherwise, the devices all power-up at the same time. Most devices require you to set a jumper before they can respond to this command.

When set to **yes**, the Start Unit Command is sent to the SCSI device during bootup. When set to **no**, each SCSI device powers-up in its normal fashion. The default setting is **no**.

The Send Start Unit Command setting is valid only if the host adapter BIOS is enabled.

If this option is enabled for more than one SCSI device, the Start Unit Command is sent first to the device with the lowest SCSI ID. When this device responds to the SCSI controller, the Start Unit Command is sent to the next highest SCSI ID with a setting of **yes**. The process continues until all supported devices respond to the SCSI controller.

*If many drives are set to **yes** for Send Start Unit Command, the boot time varies depending on how long it takes each drive to spin up.*

Advanced Configuration Options

When you select Advanced Configuration Options, a screen similar to the figure below appears. Do not change these options unless absolutely necessary.

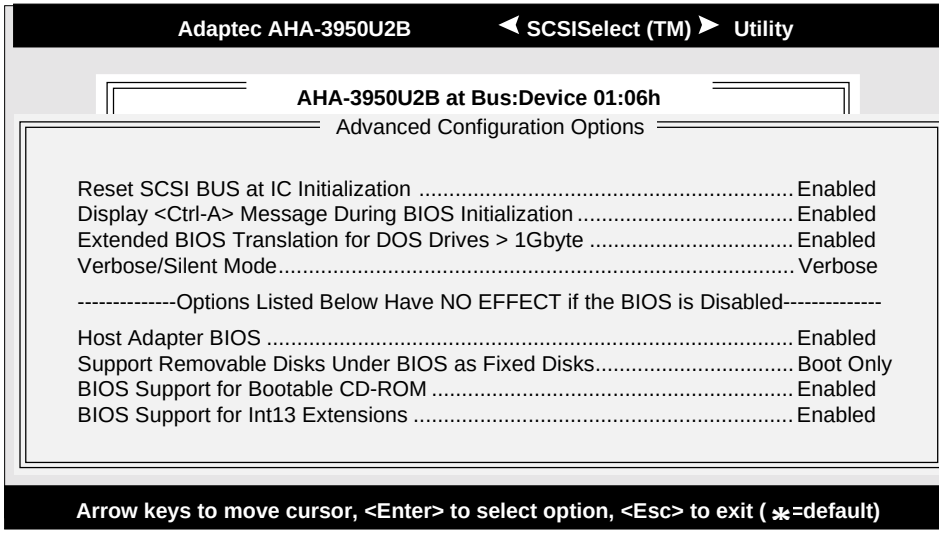

Adaptec AHA-3950U2B
SCSISelect (TM)
Utility
AHA-3950U2B at Bus:Device 01:06h
Advanced Configuration Options
Reset SCSI BUS at IC Initialization ..... Enabled
Display <Ctrl-A> Message During BIOS Initialization ..... Enabled
Extended BIOS Translation for DOS Drives > 1Gbyte ..... Enabled
Verbose/Silent Mode..... Verbose
----------Options Listed Below Have NO EFFECT if the BIOS is Disabled----------
Host Adapter BIOS ..... Enabled
Support Removable Disks Under BIOS as Fixed Disks..... Boot Only
BIOS Support for Bootable CD-ROM ..... Enabled
BIOS Support for Int13 Extensions ..... Enabled
Arrow keys to move cursor, <Enter> to select option, <Esc> to exit (*=default)

Figure 4-9 Advanced Configuration Options Screen

Use the cursor keys (↑ ↓) to move between options. Press **Enter** to display a pop-up menu with a selection of options. Use the cursor keys (↑ ↓) to select an option, and press **Enter** to make your selection.

Host Adapter BIOS

This option enables or disables the SCSI controller BIOS. Default is **Enabled**.

The SCSI controller BIOS must be enabled if you want the computer to boot from a SCSI hard disk drive connected to the SCSI controller. Several SCSI*Select* options cannot be used unless the SCSI controller BIOS is enabled.

Support Removable Disks Under BIOS as Fixed Disks

This option allows you to control which removable-media drives are supported by the SCSI controller BIOS. It is only valid if the SCSI controller BIOS is enabled. The default setting is **Boot Only**. The following choices are available:

- **Boot Only** – Only the removable-media drive designated as the boot device are treated as a hard disk drive.
- **All Disks** – All removable-media drives supported by the BIOS are treated as hard disk drives.
- **Disabled** – No removable-media drives are treated as hard disk drives. In this situation, software drivers are needed because the drives are not controlled by the BIOS.

*Support for removable-media drives means only that the SCSI controller BIOS **allows** you to use a removable-media drive as if it were a hard disk drive; it does **not** mean you can remove the disk media during operation. If a removable-media SCSI device is controlled by the SCSI controller BIOS, **do not** remove the media while the drive is powered-on or you may lose data! If you want to be able to remove media while the power is on, install the removable-media device driver and set this option to **Disabled**.*

Extended BIOS Translation for DOS Drives > 1 GByte

This option allows you to enable or disable extended translation for SCSI hard disks with a capacity greater than 1 GByte. It is only valid if the SCSI controller BIOS is enabled. The default setting is **Enabled**. Do not change this setting from the default.

If this option is enabled, the following translation schemes are used:

- SCSI hard disks < 1 GByte use a translation scheme of 64 heads, 32 sectors per track
- SCSI hard disks > 1 GByte use a translation scheme of 255 heads, 63 sectors per track

Display <Ctrl-A> Message During BIOS Initialization

This option allows entering the SCSI *Select* utility during BIOS initialization. The default setting is **Enabled**.

BIOS Support for Bootable CD-ROM

When this option is enabled, a bootable CD-ROM device may be used to directly load an operating system. The default setting is **Enabled**.

BIOS Support for Int13 Extensions

This option allows access to attached SCSI devices through BIOS Int13 functions. The default setting is **Enabled**.

4.2.2 SCSI Disk Utilities

When you select SCSI Disk Utilities from the Options menu the SCSI*Select* utility scans the SCSI bus and lists all SCSI devices installed on the SCSI bus. You will see a screen similar to the figure below. You can easily determine from this screen which SCSI ID is assigned to each device on the SCSI bus.

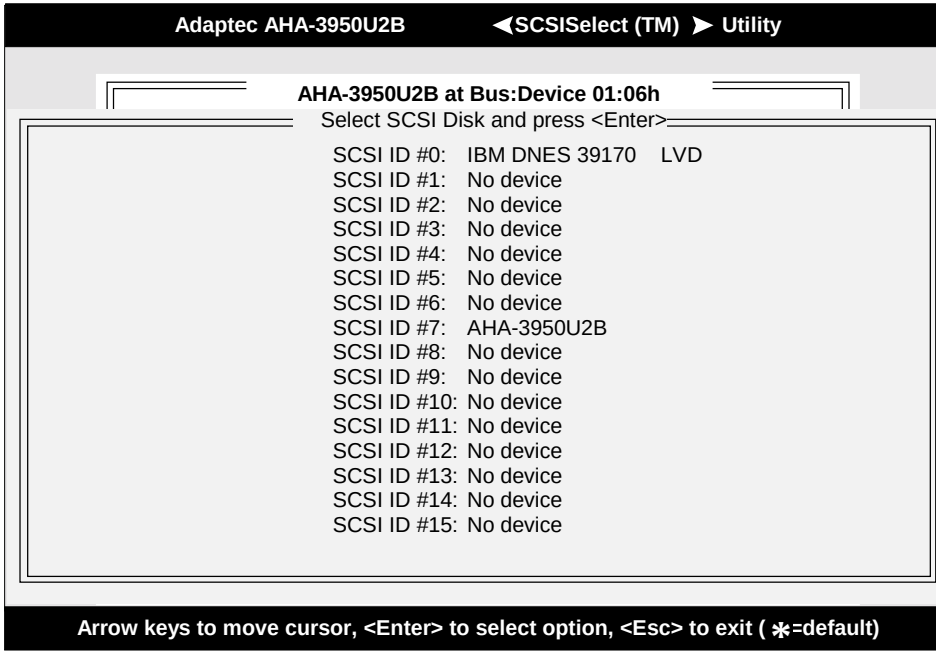

Adaptec AHA-3950U2B ◀SCSISelect (TM) ▶ Utility
AHA-3950U2B at Bus:Device 01:06h
Select SCSI Disk and press <Enter>
SCSI ID #0: IBM DNES 39170 LVD
SCSI ID #1: No device
SCSI ID #2: No device
SCSI ID #3: No device
SCSI ID #4: No device
SCSI ID #5: No device
SCSI ID #6: No device
SCSI ID #7: AHA-3950U2B
SCSI ID #8: No device
SCSI ID #9: No device
SCSI ID #10: No device
SCSI ID #11: No device
SCSI ID #12: No device
SCSI ID #13: No device
SCSI ID #14: No device
SCSI ID #15: No device
Arrow keys to move cursor, <Enter> to select option, <Esc> to exit (✻=default)

Figure 4-10 SCSI Disk Utilities Screen for AHA-3950U2B

When you highlight a disk device by moving to it with the cursor keys and press **Enter**, a small menu window appears. You then select **Format Disk** or **Verify Media** from this menu.

Use the cursor keys (↑ ↓) to move between options. Press **Enter** to display a pop-up menu with a selection of values. Use the cursor keys (↑ ↓) to select a value, and press **Enter** to make your -selection.

*Use SCSI Disk Utilities to check the hard disk drive firmware revision. (Select **SCSI Disk Utilities** from the Configure/View Host Adapter Settings screen. Use the arrow keys to highlight a disk device, then press **Enter** to display the firmware revision.)*

Format Disk

The **Format Disk** utility performs a low-level format on disk devices.

Most SCSI disk devices are preformatted and do not need to be formatted again. The Adaptec **Format Disk** utility is compatible with the vast majority of SCSI disk drives. Run it on hard disk drives or removable-media drives that were previously used with a non-Adaptec SCSI controller.

*A low-level format destroys all data on the drive. Be sure to back up your data before performing this operation. You **cannot** abort a low-level format once it is started.*

Verify Disk Media

The **Verify Disk Media** utility scans the selected device's media for defects. If the utility finds bad blocks, it prompts you to reassign them; if you select **yes**, those blocks will no longer be used.

*You can press **Esc** at any time to abort the **Verify Disk Media** utility.*

4.3 Configuring Multiple SCSI Controllers

The AHA-3950U2B SCSI controller is used as an example in the following discussion.

To use multiple PCI SCSI controllers, do the following:

- Install the boot SCSI controller in the lowest PCI **Device** number. The **Device** number is determined by the slot number on the PCI bus.

  To find out the **Device** number of the AHA-3950U2B SCSI controller(s), run the SCSI*Select* utility (by pressing the key combination **Ctrl + A** when it is displayed onscreen at bootup). Look on the first screen of SCSI*Select* in the upper right hand corner for **Bus:Device xx:xxh** (given in hex).

  If the **Device** number is high, move the AHA-3950U2B to a PCI slot at the other end of the motherboard and rerun SCSI*Select* to see if the number is lower.

This step is a recommended solution for most PCI motherboards. You can also simply switch the AHA-3950U2B SCSI controller into another PCI slot if the boot order is not what is desired.

- If you are booting from the AHA-3950U2B and using ISA/EISA-based host adapters as secondary devices, you must disable the BIOS on all ISA/EISA-based SCSI controllers.
- If you are booting from ISA/EISA-based SCSI controllers and using the AHA-3950U2B as a secondary device, see your ISA/EISA-based SCSI controller documentation to ensure the SCSI controller is at the lowest BIOS base address. ISA/EISA-based SCSI controllers which have their BIOS enabled boot before the AHA-3950U2B.

4.4 SCSI Troubleshooting Checklist

The AHA-3950UB SCSI controller has been tested for compatibility with a wide range of SCSI devices. Most problems that occur during installation result from errors in preparing and connecting devices on the SCSI bus.

Answer these questions first if a problem occurs during installation:

- Are the power cables and SCSI interface cables properly connected?

  Connect internal SCSI devices to your computer's power supply. Connect the power cables of external SCSI devices to a grounded line power outlet. Follow the instructions in the computer and SCSI device documentation.

- Is pin-1 orientation maintained throughout the SCSI bus?

- Are the PCI bus and slot parameters set correctly in your computer's **Setup** program?

  The PCI bus is designed to assign IRQ, port address, and BIOS address settings automatically to the SCSI controller. But you may need to assign some of these values manually in the **Setup** program.

- Is each SCSI device, including the SCSI controller, set to a unique SCSI ID?

- Is SCSI termination set correctly?

  If your problem is still not resolved, continue with the next section.

4.5 BIOS Startup Messages

After you have configured your SCSI controller, the SCSI controller BIOS displays a message when you boot your computer. Normally, this message lists the SCSI ID, manufacturer, model number and other information for each SCSI device that the BIOS detects.

If an initialization failure occurs, however, the SCSI controller BIOS displays a specific error message followed by a *BIOS Installation Failure* message. Here are some of these error messages and their meaning:

```
WARNING!!!

A drive larger than 1 gigabyte has been detected with 64 head / 32 sector
partitioning. This drive is not compatible with the 255 head / 63 sector
translation which has been enabled on this adapter. Data could be
corrupted! Please check your system setup!

Press any key to continue.
```

This message occurs only if Extended BIOS Translation is enabled in the SCSI*Select* utility. It means that the BIOS detected a large capacity drive with invalid partition information in the master boot record.

If you are using a drive larger than 1 GByte under MS-DOS 5.0 or above and this message appears, do the following:

1. Run the SCSI*Select* utility and set Extended BIOS Translation to **Disabled**. (See Extended BIOS Translation for DOS Drives > 1 GByte in the Advanced Configuration Options section).

2. Exit from the SCSI*Select* utility and back up the data on the disk drive, if you want to save it.

3. Perform a SCSI low-level format with the **Format Disk** utility under SCSI Disk Utilities in the SCSI*Select* utility.

*All data on the target drive will be lost when you run the **Format Disk** utility. Back up your data before you run it!*

4. In the SCSI*Select* Advanced Configuration Options menu, set Extended BIOS - Translation to **Enabled**.

5. Partition the drive again.

6. Restore data to the drive, if necessary.

4.5.1 Device connected, but not ready

This message appears if the SCSI controller receives no answer when it requests data from an installed SCSI device. The SCSI controller skips this device and moves on to the next device on the bus.

Do the following if you see this message when you request data from a SCSI drive:

1. Run the SCSI*Select* utility and access SCSI Device Configuration. Locate the host controller's SCSI ID and set Send Start Unit Command to **yes**.

2. Exit the SCSI*Select* utility and request data from the drive again.

3. If the message still appears, follow the drive manufacturer's instructions to make sure the drive is set to spin-up when the power is switched ON.

4.5.2 Start unit request failed

The BIOS was unable to send a Start Unit Command to the device. Run the SCSI*Select* utility and disable Send Start Unit Command for the device.

Time-out failure during SCSI Inquiry command!

or

Time-out failure during SCSI Test Unit Ready command!

or

Time-out failure during Start Unit command!

An unexpected time-out occurred. Check SCSI bus termination. Try disconnecting the SCSI peripheral cables from the SCSI controller and then starting the computer. If the computer successfully restarts, check SCSI bus termination and cable connections. One of the devices on the SCSI bus may be defective.

4.5.3 Disk Drive Configuration Problems

This section describes situations that may occur if your computer has multiple disk drives, including combinations of standard disk drives and SCSI disk drives.

"Standard disk drive" means a disk drive attached to the computer through a standard ISA/EISA, non-SCSI disk controller—for example, an IDE drive.

Standard hard disk drives can be set to the *installed* or *not installed* state by the **Setup** program supplied with the host computer. The **Setup** program allows you to select the number of standard hard disks that are recognized by the computer, regardless of whether they are physically installed. SCSI drives are not controlled through the **Setup** program.

If both SCSI and non-SCSI disk drives are installed, then the non-SCSI disk drive is *always* the boot device.

Booting the Computer from a SCSI Drive

- Be sure that the SCSI boot drive is set to SCSI ID 0 and that there are no SCSI ID conflicts. Check the drive installation manual for information about setting the SCSI ID for that device. You can use the SCSI*Select* utility to determine the SCSI IDs of devices on the SCSI bus.

- Be sure that parity checking is consistently enabled or disabled on all devices on the SCSI bus. See the section "SCSI Parity Checking".

- Try enabling Include in BIOS Scan in the SCSI Device Configuration option of the SCSI*Select* utility. See the section "SCSI Device Configuration".

- Be sure to cycle the power OFF and ON after changing any values on a SCSI controller, in a **Setup** program, or on a SCSI device. Doing this ensures that the new initial values are loaded.

- Be sure that the SCSI bus is properly terminated. See the section "Setting SCSI Bus Termination".

- Be sure that the intended boot disk has an active partition and has been formatted.

- Check cable connections and pin-1 orientation.

Using a Standard Drive as C and a SCSI Drive as D

- Use the **Setup** program to map the second standard hard disk (if one exists) out of the configuration.

- Disable Onboard SCSI Boot in Setup.

- Be sure that the SCSI drive to be used as drive D is set to SCSI ID 0. Check the drive manual for information on setting the SCSI ID for that device. You can also use the SCSI*Select* utility to determine the SCSI addresses of peripherals on the SCSI bus.

- Be sure that SCSI parity checking is consistently enabled or disabled on all devices on the SCSI bus.
- Verify that the SCSI controller and the SCSI devices are properly configured and installed.
- Be sure to cycle the power OFF and ON after changing any values on a SCSI controller, in a **Setup** program, or on a SCSI device. Doing this ensures that the new initial values are loaded.
- Be sure that the SCSI bus is properly terminated.
- Be sure that the disk is formatted and has a partition.
- Check cable connections and pin-1 orientation.

Using a SCSI Drive as C and Another SCSI Drive as D

- Be sure that the SCSI drive to be used as drive C is set to SCSI ID 0. Check the disk drive manual for information on setting the SCSI ID for that device. You can also use the SCSI*Select* utility to determine the SCSI addresses of peripherals on the SCSI bus.
- Set the SCSI drive to be used as drive D to SCSI ID 1. Check the drive manual for information on setting the SCSI ID for that device.
- Try enabling **Include in BIOS Scan** in the SCSI Device Configuration option of the SCSI*Select* utility. See the section “SCSI Device Configuration”.
- Be sure to cycle the power OFF and ON after changing any values on a SCSI controller, in a **Setup** program, or on a SCSI device. This ensures that the new initial values are loaded.
- Be sure that SCSI parity checking is consistently enabled or disabled on all devices on the SCSI bus.
- Verify that the SCSI controllers and the SCSI devices are properly configured and installed.
- Be sure that the SCSI bus is properly terminated.
- Be sure that, if necessary, the disk has a partition and is formatted.

Computer Hangs, or SCSI Controller Cannot Always Find the Drives

- Check SCSI parity for consistency and be sure SCSI termination is set correctly.
- Check cable length and integrity. Check pin-1 orientation.
- If the SCSI controller LED remains on when the computer hangs, the host adapter may be interfering with your computer's operation. It may be installed in a motherboard slot that does not support First-Party DMA (i.e., Bus Master) data transfers. See your computer documentation.

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